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TEAC® A-4070G

STEREO TAPE DECK
SERVICE MANUAL

ALSO APPLICABLE 4070G

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1 GENERAL DESCRIPTION

The TEAC A-4070G is a 2 channel, 4 track tape deck capable of both bi-directional recording and playback, The A-4070G employs a three motor mechanism, solenoid operated, with auto reverse in either direction, automatic repeat and continuous play capability.

The basic design of the A-4070 is highly similar to that of the A-4070G, therefore information in this service manual may be applied to the A-4070.

This service manual provides adjustment and alignment procedures, schematic diagrams and parts replacement information and the proper procedures for obtaining necessary repair parts.

If adjustments or repair procedures are not clear or seem difficult to accomplish or should you desire more detailed technical information, please contact your nearest TEAC dealer, TEAC Corporation or affiliated corporations, address's of which are printed in this manual.

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MANUAL CHANGES

2 SERVICE DATA

MECHANICAL

Heads: (Ferrite)	Four track 2 channel stereophonic Erase/Record combination head ×2; Erase section, 1.8kΩ/100kHz, erase current approx.30mA Record section, 95Ω/1kHz, bias current approx. 25mA 4.7kΩ/100kHz, signal current approx. 400Hz 200μA Playback ×2; 1∿2kΩ/1kHz -66dB
Tape Width:	Standard 1/4 inch tape
Tape Speed:	7-1/2ips and 3-3/4ips (±0.5%)
Motors:	4/8-pole dual speed hysteresis synchronous motor for capstan drive Two 6-pole eddy current motors for reel drive
Wow and Flutter:	0.06% at 7-1/2ips 0.09% at 3-3/4ips Wow and flutter measured according to weighted NAB standard using TEAC test tape.
Fast Winding Time:	Approx. 120 seconds or less for 1200 feet
Operating Position:	Horizontal or vertical
Power Requirements:	100/117/200/220/240V AC 50/60Hz 125W
Weight:	51 lbs (23kg) net

ELECTRICAL

Transistors:	2SC733BL ×2 2SC733 ×14 2SC1000BL ×12	2SA494 ×2 2SC971 ×2
Diodes:	FR2-02 ×3 SIB02-B ×1 FR2-06 ×7	FR2-10 ×2 FR2-08 ×3
Frequency Response:	Overall from recording INPUT to playback OUTPUT using SCOTCH #203 tape 7-1/2ips, ±3dB 30Hz∿20kHz 3-3/4ips, ±3dB 40Hz∿10kHz	
Equalization:	NAB equalization 7-1/2ips 50μ sec 3-3/4ips 90μ sec	
Input:	MIC 0.3mV (-70dB) LINE 0.1V (-18dB)	
Bias Frequency:	100kHz push-pull oscillator	
Signal to Noise Ratio:	7-1/2ips 48dB or higher 3-3/4ips 46dB or higher at playback to unweighted noise	
Stereo Chan. Separation:	45dB channel to channel at 1kHz	
Cross Talk:	35dB adjacent track at 100Hz	
Erase Efficiency:	70dB or more at 7-1/2ips	

These specifications are indispensable information and are required to service the equipment properly. They may differ slightly from those printed in the advertising brochures or the operation manual.

3 EQUIPMENT REQUIRED

FOR MECHANICAL MEASUREMENT

SPRING SCALE:	0∿4 kilo-grams (0∿8 lbs) #5086025000 0∿300 grams (0∿10 oz) #5086026000
TEST TAPE:	TEAC YTT-2003 (7-1/2ips) TEAC YTT-2002 (3-3/4ips)
FLUTTER METER:	Meguro Model MK665B (preferred) or Sentinel FL-3D-1
DIGITAL FREQ. COUNTER:	Capable of 0 to 5kHz indication
TOOLS:	General, 2mm nut driver #5086014000 Hex head, allen wrench #5086021000

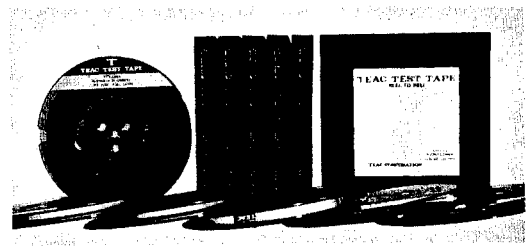


Fig. 3-1 Spring Scale, and TEAC Test Tape

FOR ELECTRICAL MEASUREMENT

TEST TAPE:	TEAC YTT-1003 for 7-1/2ips TEAC YTT-1002 for 3-3/4ips
	SCOTCH 203 and 150 for test recording
EMPTY REEL:	TEAC RE-702 (2" hub) TEAC RE-701 (4" hub)
TEST SET:	TEAC M-826A test set
BAND PASS FILTER:	TEAC M-206A (1kHz)
AC/DC VTVM:	General purpose
RESISTOR:	Non inductive type 8Ω/1W
OSCILLOSCOPE:	General purpose

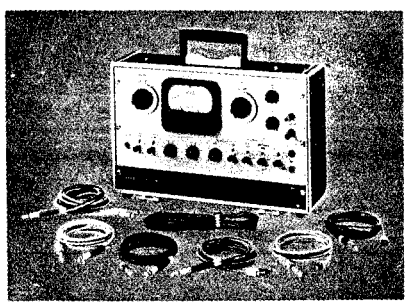


Fig. 3-2 TEAC M-826A

NOTE

Use of the TEAC M-826A test set is recommended. This set incorporates an AC VTVM, Audio Oscillator, Channel Selecting switch, Variable Attenuator, Monitor Speaker and Cables.

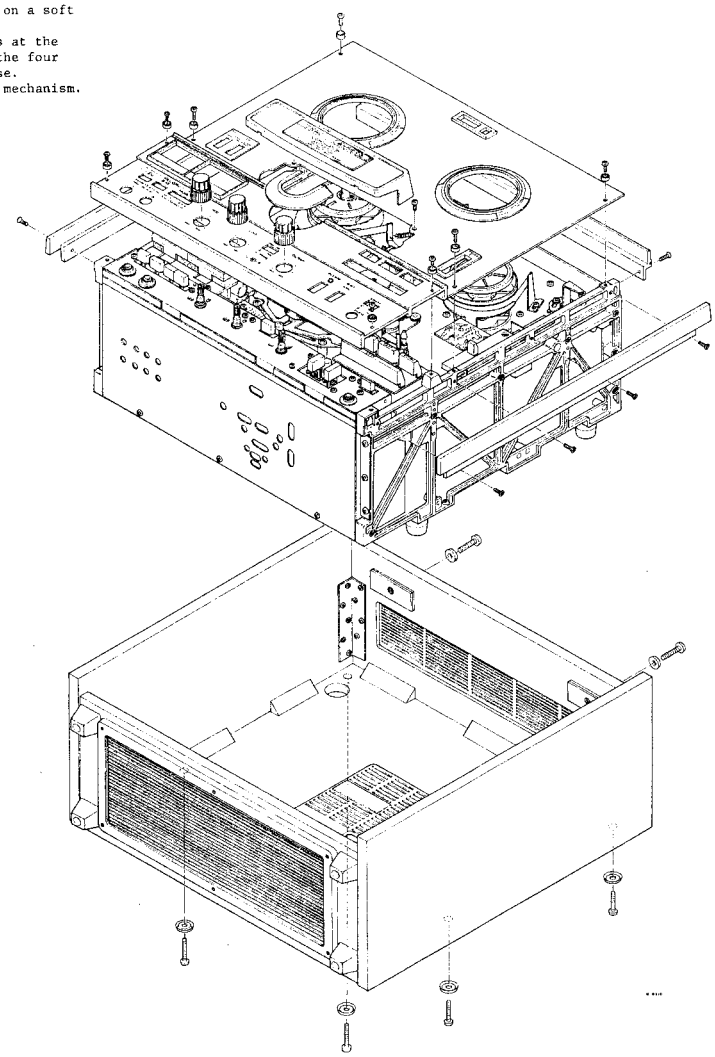
TEAC M-826A measures the RMS value of the Voltage(0dB=0.775V). Characteristics of this test set are similar to the standard VU-meter.

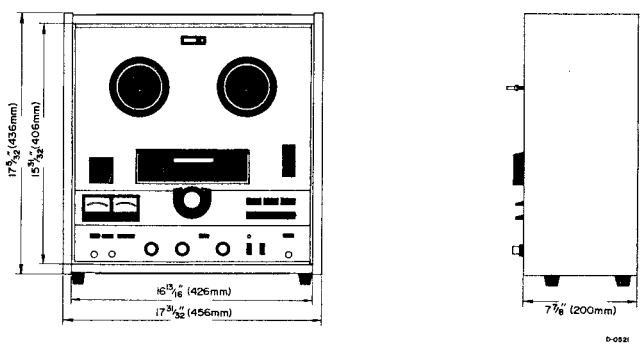
4 PARTIAL DISASSEMBLY

REMOVING THE EQUIPMENT FROM CASE

Case should only be removed to perform major maintenance.

1. Lay tape deck, face down on a soft mat.
2. Remove the two (2) screws at the top of the case, remove the four (4) screws on rear of case. Carefully lift case from mechanism.





Dimensions

FRONT PANEL REMOVAL

1. Place the A-4070G on its back, with the front panel assy face up and the bottom of the deck towards you.
2. Remove the head housing assy.
3. Remove both tape tension arms.
4. Remove knobs.
5. Remove the ten (10) cross-point screws from the front panels.

NOTE

Two screws are immediately above the tape head mechanism.

6. Lift off the control panel assy.
7. Lift off the front panel assy.

AMPLIFIER ASSEMBLY ACCESS

The A-4070G is equipped with a removable amplifier assembly. By removing the six screws that secure the amplifier to the bottom of the chassis, you can easily swing out the amplifier for maintenance. Most of the replacement components are completely accessible. If amplifier assy maintenance is necessary, follow these steps:

1. Complete all steps in front panel removal.
2. Remove six (6) cross-point screws from the sides of the bottom panel.

NOTE

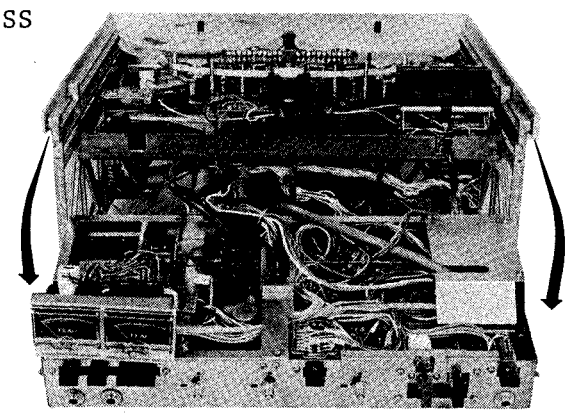
Three lower screws are holding the cover panel over the PC boards. These need not be removed. Access slots are provided.

3. Grasp the control shafts and gently swing the amplifier assy down towards you. Two screws on the lower sides act as a hinge for the assy.
4. To re-assemble, reverse the above procedure.

CAUTION

When closing the amplifier assy, closely observe the wires leading to the right-channel VU meter lamp socket.

AMPLIFIER ASSEMBLY ACCESS



PLAYBACK HEAD REPLACEMENT

The playback heads have a detachable shielded housing, see the exploded view illustration for disassembly instructions.

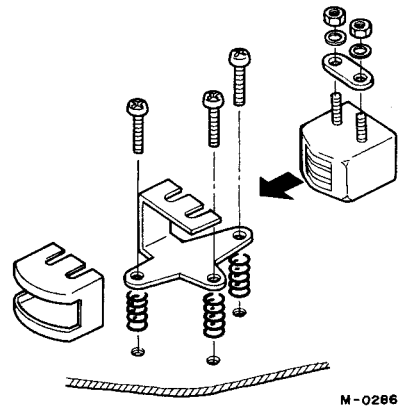


Fig. 4-1 Individual Heads

CAPSTAN MOTOR REMOVAL

1. With front panel removed, remove 4 capstan motor mounting screws.
2. Unsolder the 6 wires connecting the capstan motor. (Carefully note the wire locations and color codes).

NOTE

After motor replacement, check position of capstan pulley on shaft for proper alignment with belt guide.

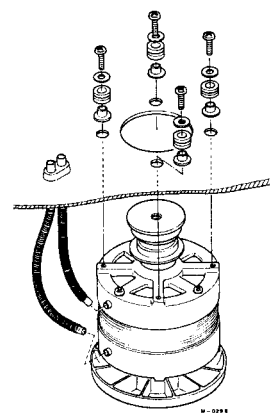


Fig. 4-2 Capstan Motor Removal

REEL MOTOR REMOVAL

1. Disconnect oiling tubes at motor housing.
2. Loosen 2 set screws securing the reel table assembly, remove reel table.
3. Remove the four screws securing motor to chassis, unsolder the six wires connecting the motor.

NOTE

Reel motor assemblies are mirror images of each other, these assemblies are not interchangeable.

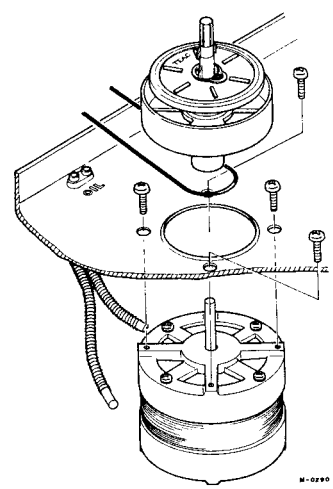


Fig. 4-3 Reel Motor Removal

DISASSEMBLY OF CAPSTAN/HEAD MOUNT AREA

1. Remove the VU meter holder.
2. Remove four button head Philips screws securing the head base plate.

Base plate may now be lifted forward to accomplish belt replacement. In order to replace the capstan assembly, the slide base assembly must first be removed.

1. Remove the L & R lower head protectors. Remove pinch roller.
2. Remove lower screw and nylon inserts from slide base assembly. (located below the pinch roller shaft housing).
3. Disconnect slide base assembly coil spring.
4. Remove the screw in one of the head PC board brackets, lift PC board from bracket thus freeing the lifter spring bracket.
5. Remove screw and nylon inserts from lifter spring bracket.
6. Slide base assembly may now be removed exposing the capstan assembly mounting screws.

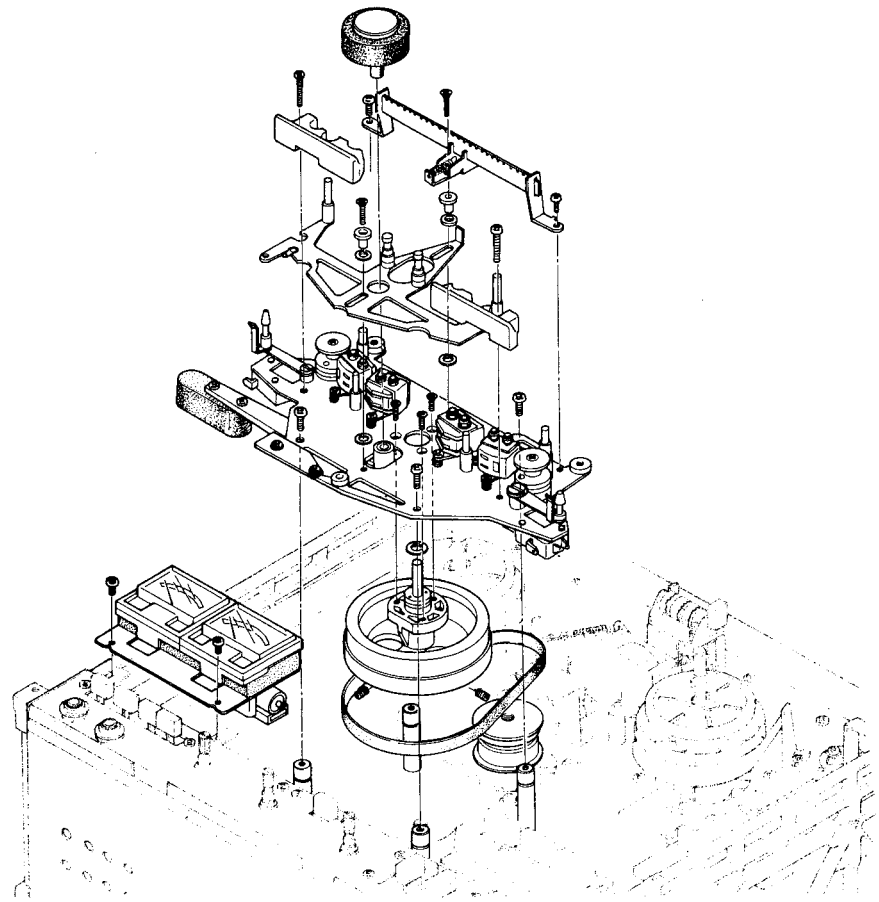
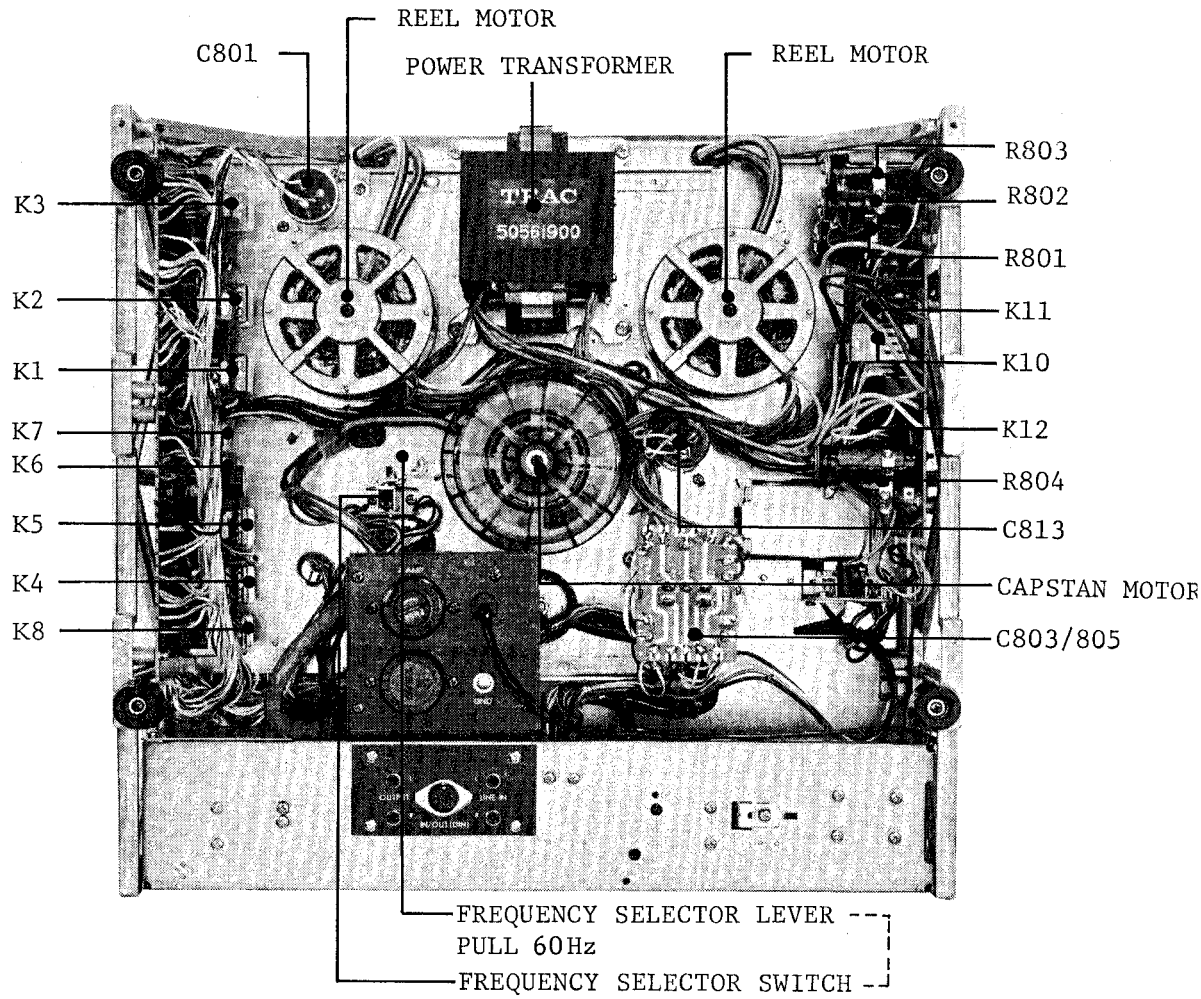


Fig. 4-4 Capstan Assy and Head Mount Removal



NOTE

K3	REV. RELAY	R802	BACK TENSION
K2	REV. RELAY	R803	TAPE 0.5 MIL (THIN)
K1	PLAY RELAY	R801	TAKE-UP
K7	REPEAT SENSING RELAY	K11	F. FWD RELAY
K6	REV. SENSING RELAY	K10	SPEED RELAY
K5	FAST RELAY	K12	MUTING RELAY
K4	DELAY RELAY		
K8	SHUT OFF RELAY		

TAPE TRANSPORT PARTS LOCATION

—REAR—

M-0284

5 HEAD ALIGNMENT -MECHANICAL-

NOTE

Head alignment is adjusted at the factory to very critical tolerances. Normally HEAD ASSEMBLY replacement will require only minor alingments or adjustments. Complete readjustment should only be necessary after an individual head is replaced. The adjustments are made as follows:

FORWARD SIDE

- ERASE/RECORD COMBINATION HEAD: The record head pole should be above the edge of a threaded tape by the width of thin pencil line.

  NOTE: Erase head should be heavy pencil line.

- PLAYBACK HEAD: The playback head pole should be even with the top of a threaded tape.

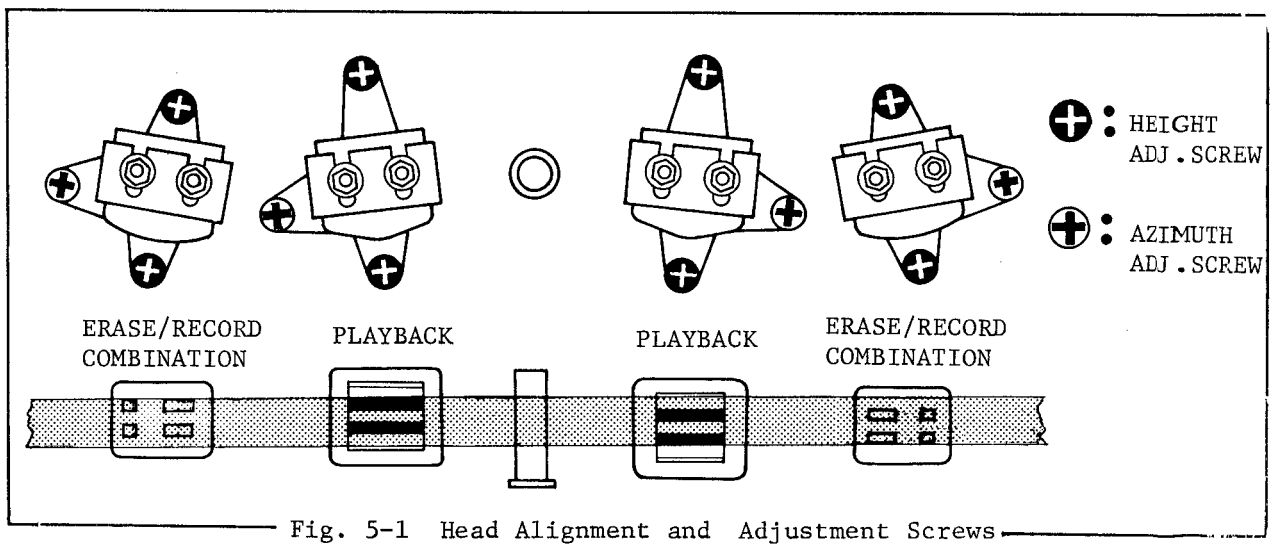


Fig. 5-1 Head Alignment and Adjustment Screws

M-0287

REVERSE SIDE

- ERASE/RECORD COMBINATION HEAD: The record head pole should be bottom the edge of a threaded tape by the width of thin pencil line.

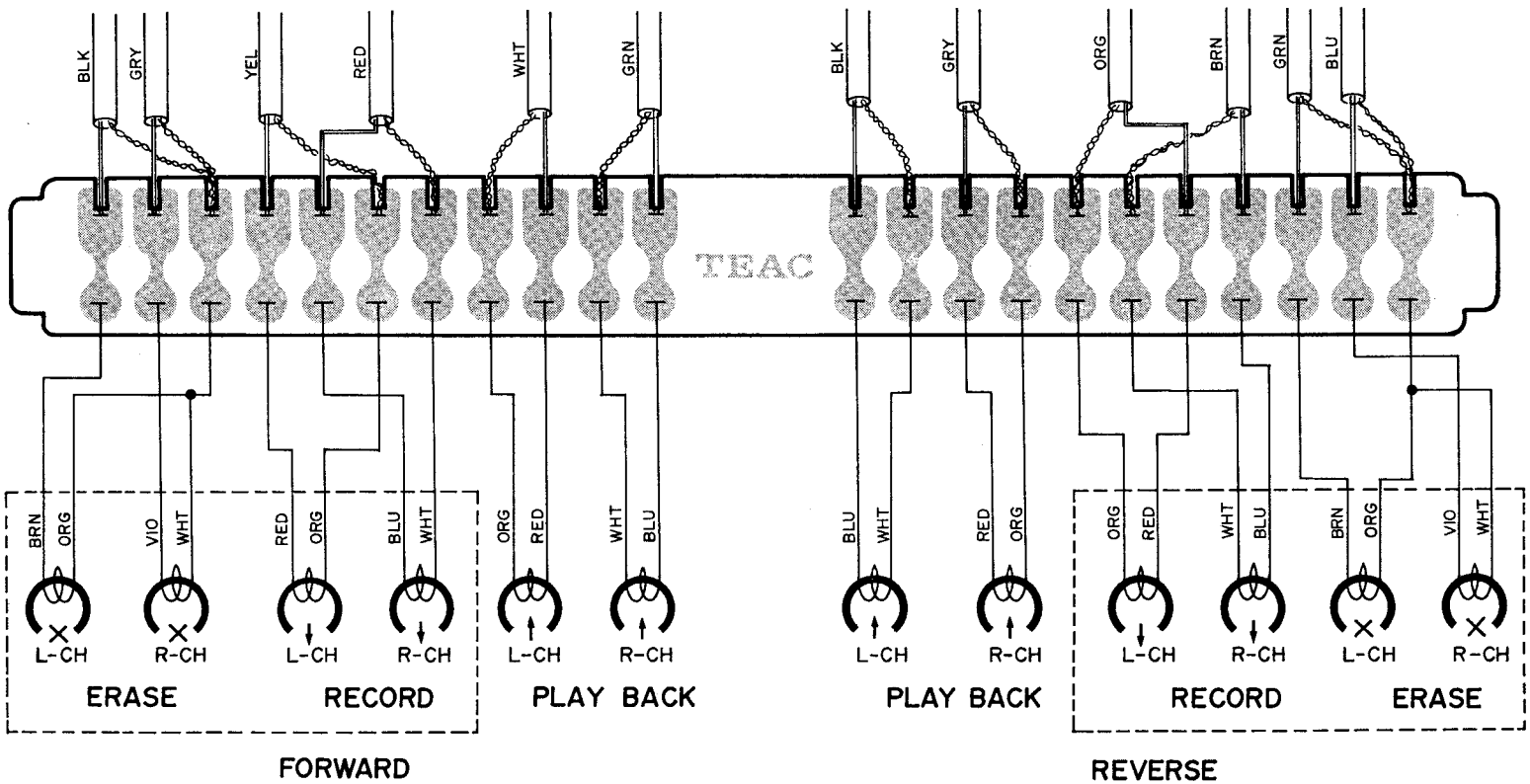
  NOTE: Erase head should be heavy pencil line.

- PLAYBACK HEAD: The pole of the playback head should be even with the bottom of a threaded tape.

NOTE

Azimuth adjustments are given in the section on MEASUREMENT AND ADJUSTMENT -ELECTRICAL-

HEAD WIRING



NOTE: ▭▭Combination Head
The position of the wires on the circuit board. Connect the new head in the same manner.

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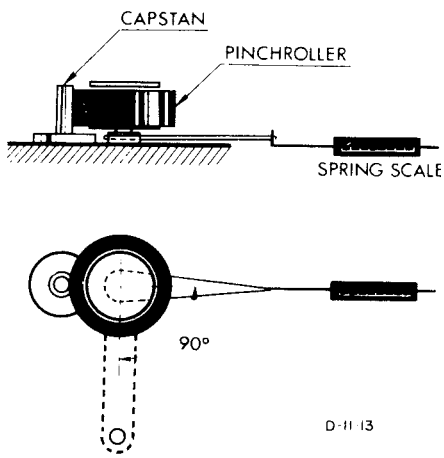
6 MEASUREMENT AND ADJUSTMENT
—MECHANICAL—

PINCH ROLLER PRESSURE ADJUSTMENT PROCEDURES

NOTE

Pinch roller pressure is supplied by pinch roller spring arm only and it is most important that the solenoid plunger be fully bottomed before pressure measurement. Remove knob and amplifier panel.

1. Block the shut-off arms in the on position.
2. Attach a suitable spring scale to the pinch roller shaft.
3. Place the unit in the PLAY mode, and holding the spring scale as illustrated, slowly draw it away from the pinch roller.
4. Do not allow the string so rub against the pinch roller.
5. Note the reading on the spring scale at the instant the pinch roller stops rotating.
6. The scale should indicate 2.0 ±0.2 kg (5.0 lbs∿5.6 lbs).
7. If adjustment is necessary, loosen the three screws on the capstan solenoid and position the solenoid for optimum pressure.
8. Solenoid spring width should be approx. 11 mm.



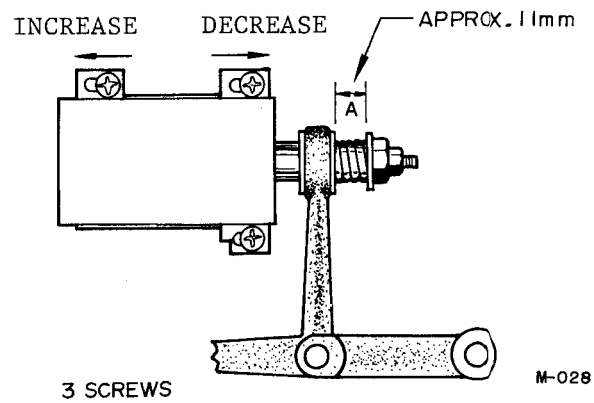


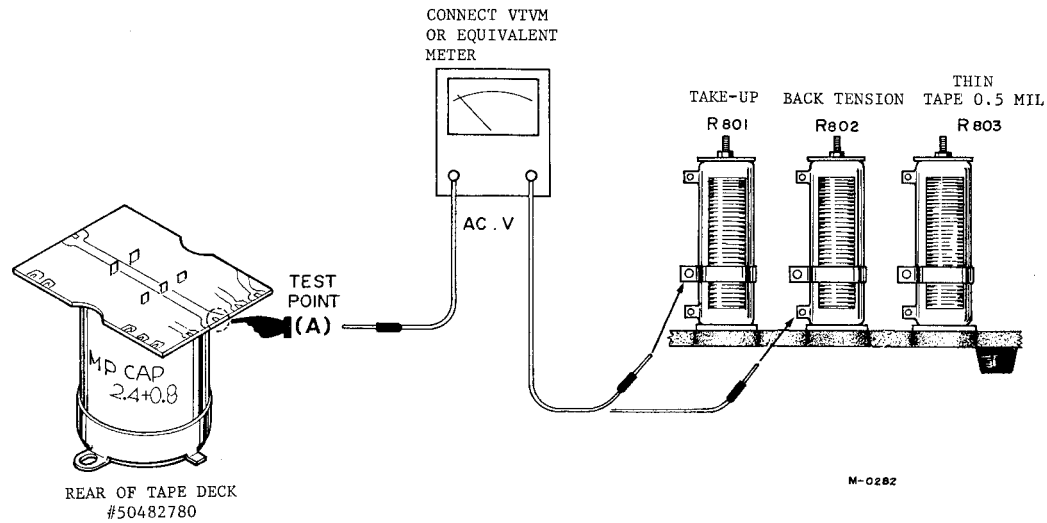
Fig. 6-1 Pressure Measurement and Adjustment Location

REEL TORQUE ADJUSTMENT PROCEDURES

Voltage Specifications

Before making reel torque adjustments, measure the voltages as outlined below. Voltages are measured from point (A) on PC board #50482780 and the applicable resistor tap. Place the unit in the PLAY mode.

A. R-801, TAKE-UP TORQUE. Voltage from point (A) to center tap of R-801 should read 54 ±1V AC.
B. R-802, BACK TENSION. Voltage from point (A) to lower tap of R-802 should read 45 ±1V AC. (Tape switch in REGULAR position.)
C. R-803, TAPE TENSION (0.5 mil THIN position). Voltage from point (A) to R-802 lower tap should read 40 ±1V AC with tape tension switch at THIN position.



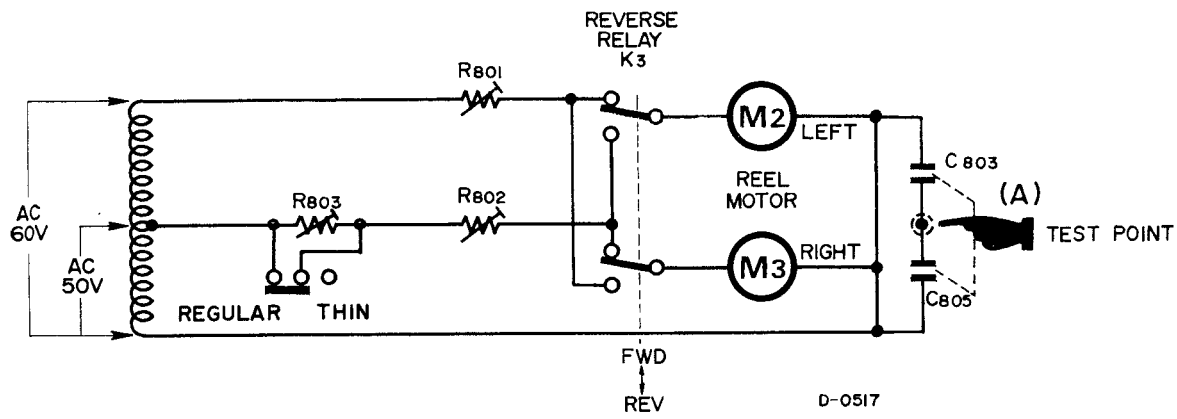


Fig. 6-2 Tension Resistor Voltage Measurements and Operation Diagram

TAKE-UP TORQUE MECHANICAL CHECK

1. Block the shut-off arms in the ON position.
2. Place tape tension switch in REGULAR position.
3. Place an empty reel (RE-701) on right reel table.
4. Rotate the reel and wind several turns of string around the hub. Attach the spring scale to the string, depress the ► button.
5. Allow the rotation of the reel to slowly draw the scale toward the hub. The spring scale should indicate 300 ±20 g-cm (4.2∿4.6 oz-inch)
6. Adjust R-801 as required.

BACK TENSION MECHANICAL CHECK

7. Place the reel and spring scale on the left reel table, depress the ► button.
8. Pull the scale away from the reel against the motor torque with a smooth steady motion.
9. The scale should indicate 230 ±20 g-cm (3.2∿3.6 oz-inch).
10. Adjust R-802 as required.

NOTE

Torque and back tension measurements may be made in either direction (forward, reverse) of play.

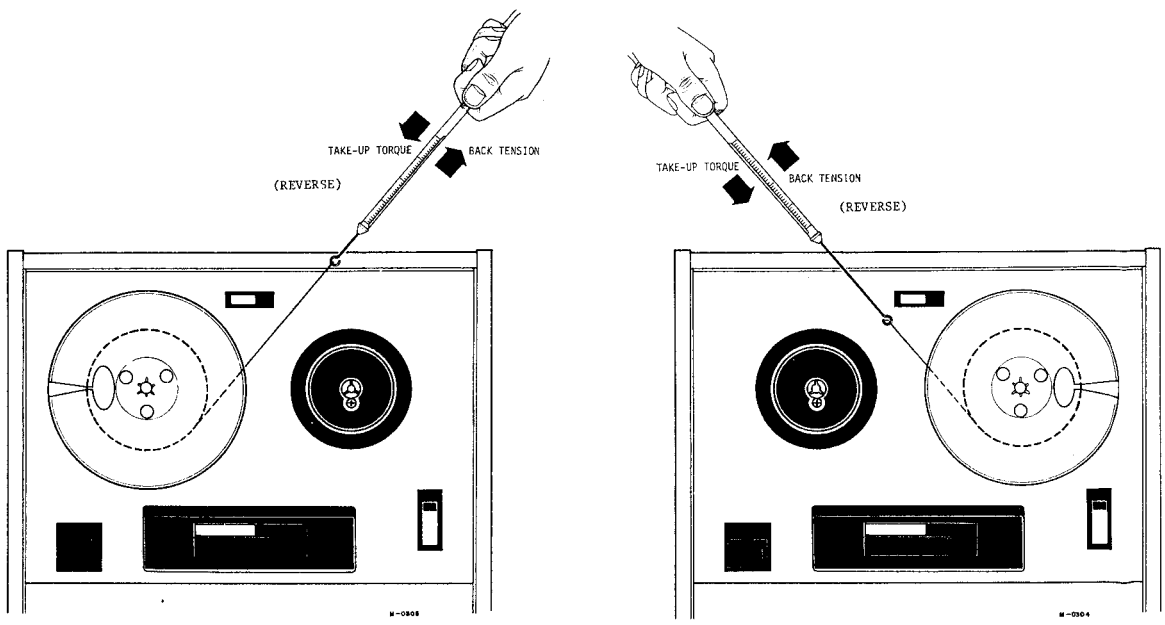


Fig. 6-3 Torque Measurement Forward and Reverse Side

BRAKE TORQUE ADJUSTMENT PROCEDURES

NOTE

The brake torque is actuated mechanically. Pressure is set by the variable spring force. While making this measurement and adjustment, be careful not to bend the brake bands. As brake torque will change with cleaning, brake drums and brake shoes should be cleaned only when absolutely necessary. If cleaning is required, use TEAC cleaner TZ-251B only. After cleaning operate the machine for some time before performing the below procedures.

Brake torque adjustments are made with no power applied to the unit.

1. Place an empty 4" hub reel on the left reel table, and fasten one end of a 30" length of string to the reel anchor.
2. Wind several turns of string counterclockwise around the hub and attach a suitable spring scale to the free end of the string.
3. Pull the spring scale away from the reel, making sure that the string does not rub the reel flanges.
4. Take a reading only when the reel is in steady motion since the force required to overcome static friction will produce a false, excessively high initial reading.
5. The reading should be 1300 ±100 g-cm (16∿20 oz-inch).
6. If adjustment is required, loosen the screw in the spring mount and position the brake for optimum torque.
7. The adjustment of the right brake is the same, with the exception that rotations are clockwise.

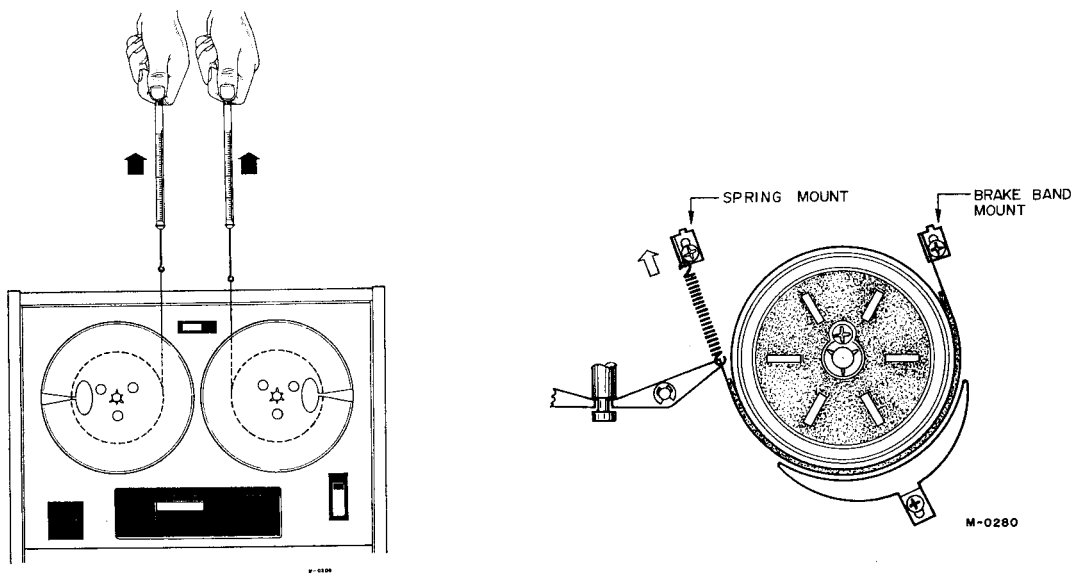


Fig. 6-4 Torque Measurement and Adjustment Location

IMPORTANT

The difference in torque between the right and left brake should be kept within 50g-cm(0.7oz-inch).

LEFT RIGHT BRAKE TIMING

1. Block tension arms in ON position.
2. Depress ◀ or ▶ button, depress STOP key, observe that both reel turntables stop at exactly the same instant. If they do not, adjust the appropriate brake band spring mount as required. (Refer to Fig. 6-4 Adjustment Location.)

BRAKE BAND CLEARANCE

1. With power off, manually depress the brake solenoid plunger, brake band to drum clearance should be 1∿2mm. Adjust to proper clearance by repositioning the brake band mount.(Refer to Fig. 6-4.)

REEL HEIGHT ADJUSTMENT

Reel height adjustment may be required to fit reels of different manufactures. Adjustment is accomplished by FINE ADJ. screw in the reel turntable. Reel turntable height should be adjusted using standard 7" reels. With a tape threaded on the machine, position the reel height for smooth tape travel.

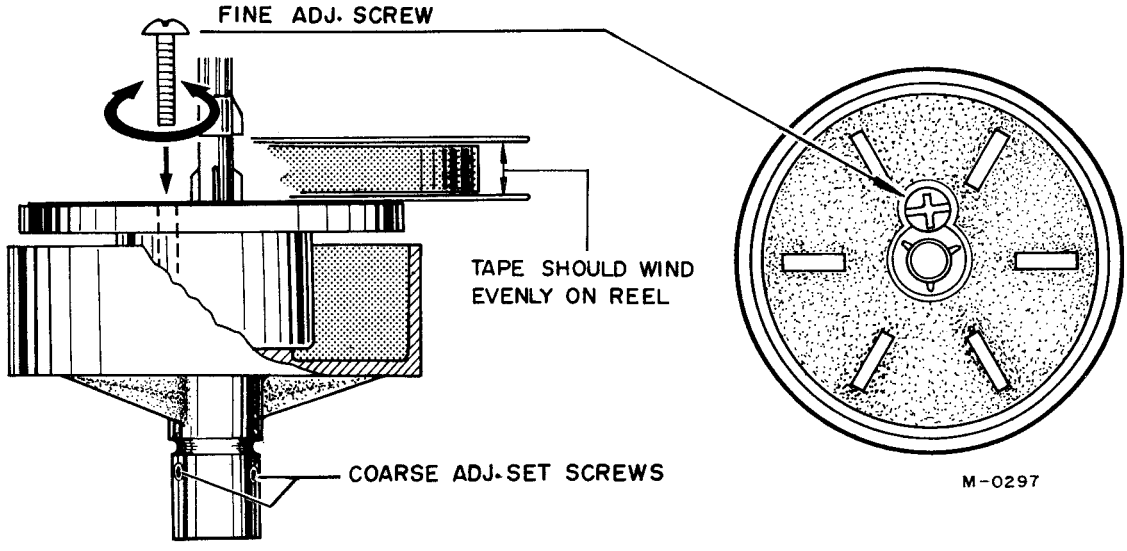


Fig. 6-5 Reel Height Adjustment

FLUTTER

Flutter should be measured in playback mode using a TEAC flutter free tape YTT-2003·2002 and Meguro model MK665B flutter meter. Measurement of flutter should be made in accordance with NAB standards.
Values obtained with different standards or equipment cannot be compared.
Flutter should not exceed. 7-1/2ips: 0.15%
3-3/4ips: 0.20%

These figures apply to any tape position and direction(such as full take-up reel, full supply reel or about mid point).

TAPE SPEED

The tape speed should be measured using TEAC flutter free tape, model YTT-2003·2002. These tapes contain a highly accurate 3 kHz tone.
Connect a digital frequency counter to either line OUTPUT jack.
The indicated frequency should be 3 kHz ±0.5% for all speeds.

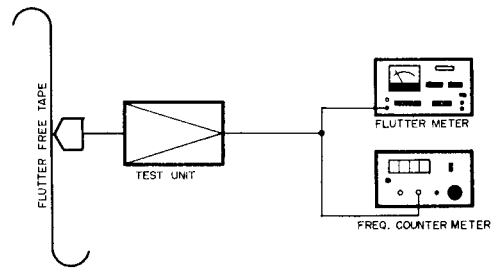


Fig. 6-6 Test Equipment Set-Up

VOLTAGE AND FREQUENCY CONVERSION

Voltage Conversion

The A-4070G may be set for 100, 117, 200, 220 and 240V AC, to change the voltage unscrew the fuse in the center of the voltage selector plug, pull out the plug and reinsert it so that the desired voltage shows in the cutout, reinstall fuse.

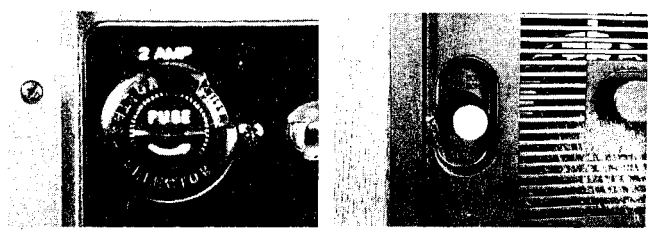


Fig. 6-7 Voltage and Frequency Conversion

Frequency Conversion

Frequency change is accomplished by means of the frequency change knob on rear of unit

1. Thread a tape on machine.
2. Start deck in playback mode.
3. While deck is operating, gently pull out on knob for 60 Hz operation, push in for 50 Hz operation.

7 MEASUREMENT AND ADJUSTMENT
—ELECTRICAL—

GENERAL NOTICE

Before performing maintenance on this unit, thoroughly clean and demagnetize the entire tape path.

It is important that the unit be set to the proper voltage and frequency for your locality.

TEAC specified standard test tapes and test equipment must be used when performing maintenance to insure reliable results.

Procedures for checks and adjustments, unless otherwise indicated, are for the left channel at a tape speed of 7-1/2ips. The same procedures are to be applied to the right channel and again for both channels at 3-3/4ips, and both directions.

All controls mentioned in this book will be printed in bold letters and will be exactly as they appear on the unit.

Double designated symbol numbers refer to left channel/right channel.

T H D : Third Harmonic Distortion.

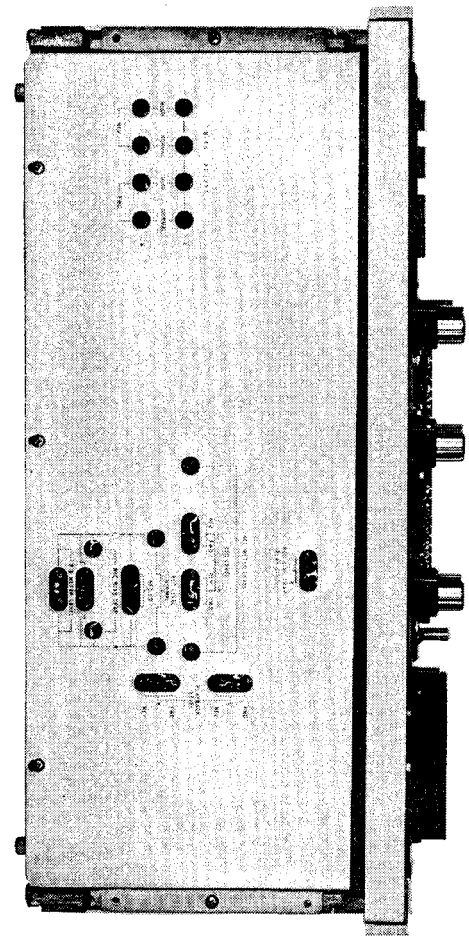


Fig. 7-1 Adjustment Locations

PLAYBACK PERFORMANCE ADJUSTMENTS

CH	PB LEVEL		PB METER LEVEL
	◄ REVERSE	FORWARD ►	
L	VR102	VR101	VR106
R	VR202	VR201	VR206

BIAS ADJUSTMENTS

CH	BIAS ADJUSTMENTS				REC BIAS TRAP
	HIGH BIAS		NORMAL BIAS		
	◄ REVERSE	FORWARD ►	◄ REVERSE	FORWARD ►	
L	VC103	VC101	VC104	VC102	L102
R	VC203	VC201	VC204	VC202	L202

RECORD PERFORMANCE ADJUSTMENTS

CH	REC LEVEL				REC EQ	REC METER LEVEL
	HIGH POSITION		NORMAL POSITION			
	◄ REVERSE	FORWARD ►	◄ REVERSE	FORWARD ►		
L	VR104	VR103	-----	VR108	L103	VR107
R	VR204	VR203	----	VR208	L203	VR207

PLAYBACK PERFORMANCE

PLAYBACK HEAD AZIMUTH ADJUSTMENT

Coarse Adjustment

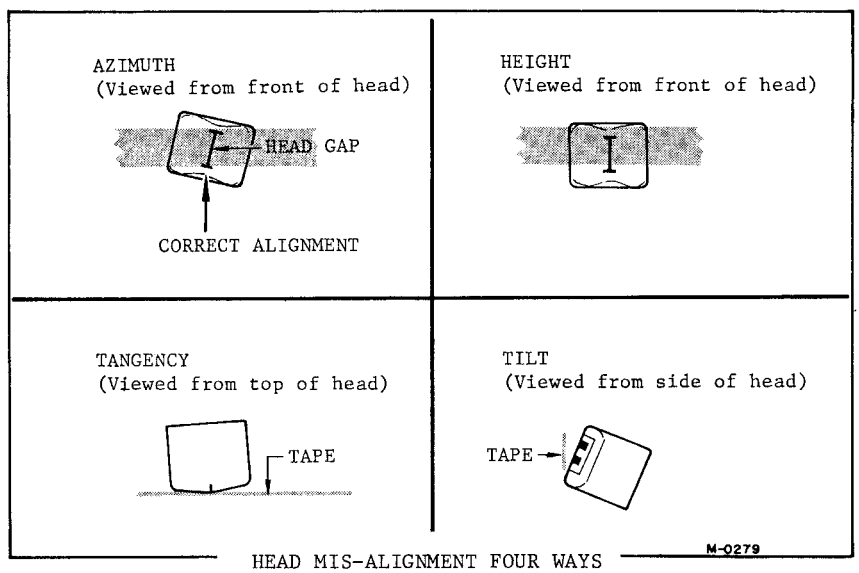
1. Connect a level meter to either OUTPUT jack.
2. Thread a TEAC test tape YTT-1003 on the unit.
3. Play the 15 kHz test tone in section 2 of the test tape.
4. Slowly rotate the azimuth screw until maximum indication is obtained on the level meter. Repeat step 4, procedure for reverse head.

Fine Adjustment

CAUTION

After coarse adjustment, do not make large corrections, turn azimuth screw 1/4 turn or less.

5. It is absolutely essential to accomplish the coarse adjustment before using this method to avoid phase errors larger than 45°.
6. Connect the test equipment as shown in Fig. 7-8.
7. Play a 10 kHz signal and adjust the azimuth screw until the oscilloscope shows that the signals are less than 45° in phase. Repeat above step for reverse head.
8. Secure the screw with a drop of LOCTITE.



HEAD MIS-ALIGNMENT FOUR WAYS

- ALIGNMENT - The physical positioning of a tape head relative to the tape itself. Alignment in all respects must conform to rigid requirements in order for a unit to function properly.

- AZIMUTH - The angle of a tape heads pole-piece slot relative to the direction of tape travel. Refer to Fig. 5-1 HEAD ALIGNMENT.

NOTE

In order for a tape unit to work at its best, with its own tapes as well as ones made on other units, its play and record heads must be aligned in the four ways shown above.

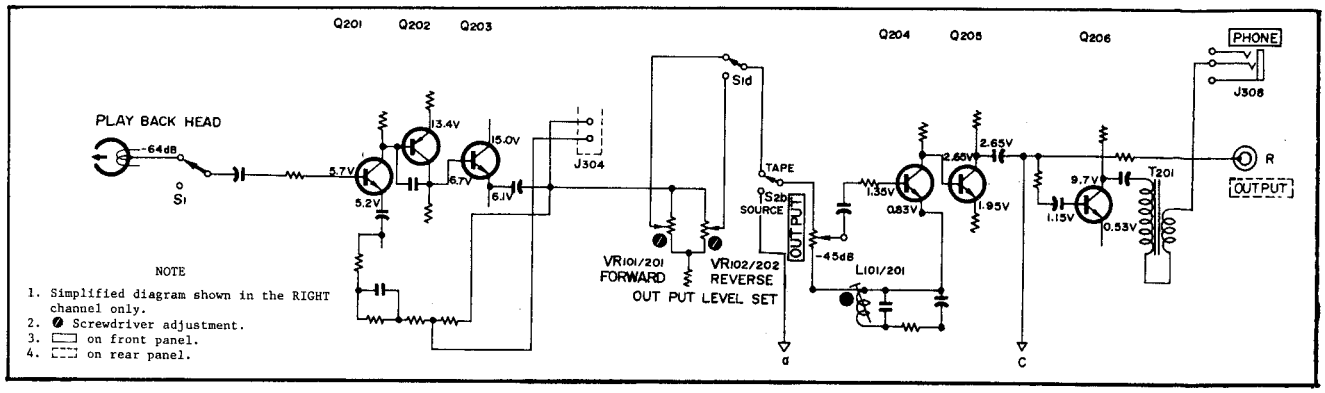


Fig. 7-2 Simplified Diagram -Playback-

SPECIFIED OUTPUT LEVEL SET

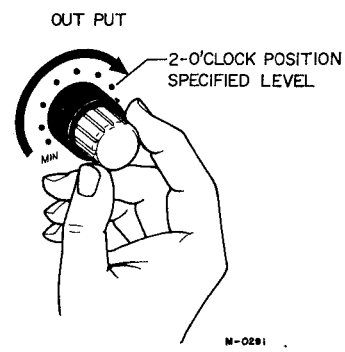
NOTE

Connect a 10 kΩ load to the OUTPUT jacks when not using the TEAC M-826A (0 dB = 0.775V) output meter.

1. Place the MONITOR switch in TAPE position.
2. Turn the OUTPUT controls fully clockwise.
3. Apply a 400 Hz signal at operating reference level (1% of the THD level).
4. Adjust FORWARD VR-101, VR-201, REVERSE VR-102, VR-202 to obtain a specified output level of -2 dB at OUTPUT jacks.
5. Retard OUTPUT controls to obtain a level of approximately -8 dB at OUTPUT jacks.

IMPORTANT

This is the specified output level set. Do not disturb this setting until the remaining adjustments have been completed.



PB METER LEVEL SET

1. While playing the 400 Hz tone (1% THD) in section 1 of the test tape.
2. With MONITOR switch at TAPE position, adjust VR-106, VR-206 for a reading of 0 VU on the VU meter.

FREQUENCY RESPONSE

1. Place TEAC test tape YTT-1003 (using 7-1/2ips), YTT-1002 (Using 3-3/4ips) on the unit.
2. Compare the readings obtained on the level meter with the response limits given in Fig.7-3
3. Forward and reverse playback frequency response should be identical.

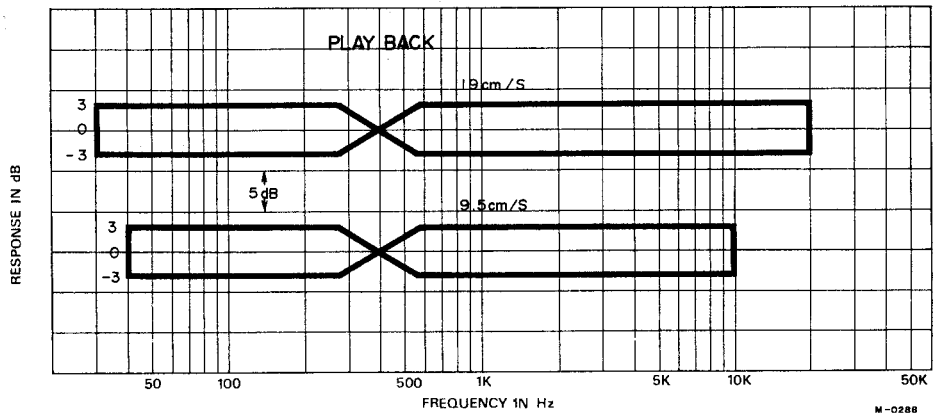


Fig. 7-3 Frequency Response -playback-

HEADPHONE OUTPUT CHECK

1. Place OUTPUT controls at specified level setting (400 Hz signal at -8 dB).
2. Connect an 8Ω non inductive resistor across the headphone output, connect level meter across the resistor.
3. Level meter should indicate -24 dBm ±2 dB.

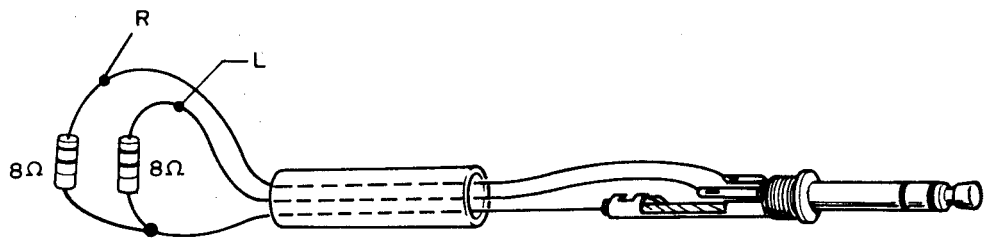


Fig. 7-4 Headphone Connecting Resistor

MONITOR PERFORMANCE

SPECIFIED INPUT LEVEL SET

LINE Input

1. Connect an AF oscillator to the LINE IN jack.
2. Place MONITOR switch in SOURCE position.
3. Apply a 400 Hz signal -8 dB at LINE IN jack.
4. Turn LINE controls fully clockwise, then adjust LINE controls to obtain a specified output level of -8 dB at OUTPUT jack.

MIC Input

5. After adjusting LINE controls, apply a 400 Hz signal at -60 dB to the MIC IN jacks.
6. Rotate the Mic controls fully clockwise.
7. The output should be -8 dB (specified output level).

REC METER LEVEL SET

Place OUTPUT controls at specified output level.

1. With MONITOR switch in SOURCE position.
2. Apply a 400 Hz signal at -8 dB to LINE IN jacks.
3. Adjust VR-107, VR-207 for 0VU ±0.5 dB on the VU meter.

RECORD PERFORMANCE

Before making any adjustments on the record amplifier, be sure that all tests in the HEAD ALIGNMENT, PLAYBACK and MONITOR PERFORMANCE sections have been accomplished and that all adjustments are correct.

Optimum recording performance(bias levels, recording levels and frequency response) is dependent upon tape characteristics. The TEAC A-4070G is factory set for Scotch type 203 or 150 tape. Service data is based upon the use of Scotch 203 or equivalent tape

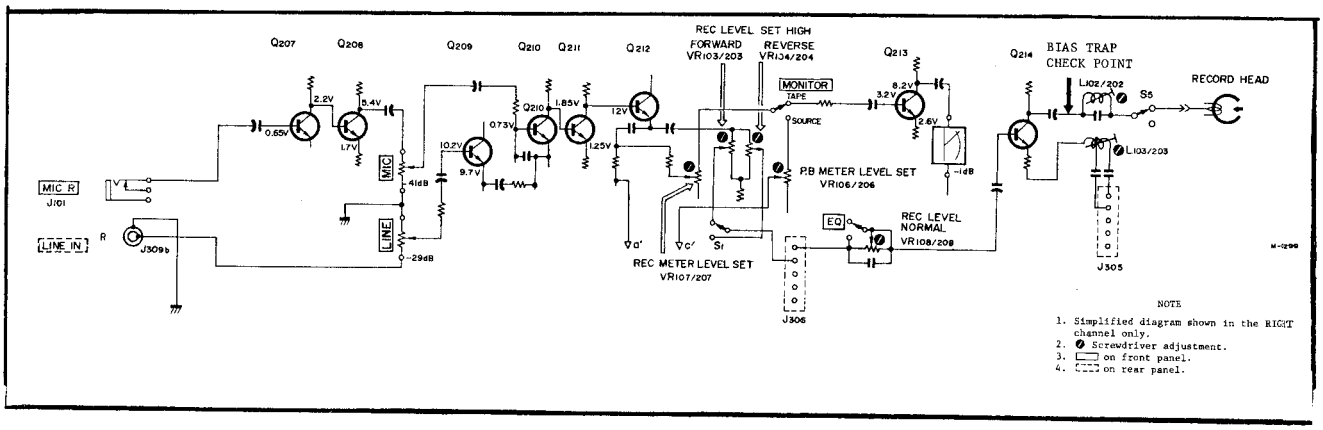


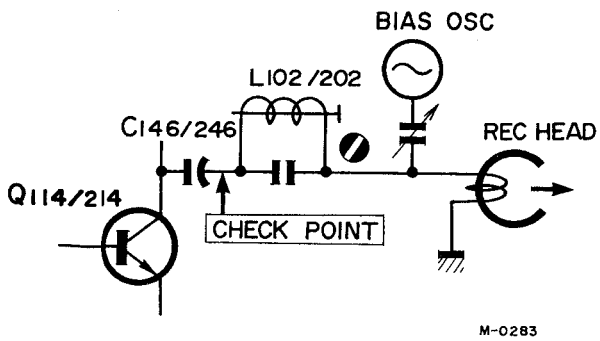
Fig. 7-5 Simplified Diagram -Record-

BIAS TRAP ADJUSTMENT

NOTE

The bias trap tank circuit keeps the bias signal from reaching the record and monitor amplifier and under normal no signal conditions, voltage should not be present at the OUTPUT jack.

1. Thread a blank tape or block tension arms in on position.
2. Place the RECORD BIAS switch to HIGH position.
3. Connect a VTVM or oscilloscope to junction of C-146/L-102, C-246/L-202.
4. Adjust L-102, L-202 for a minimum reading.
5. Adjust L-101, L-201 for a minimum reading at OUTPUT jacks.



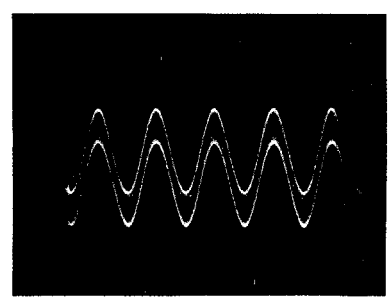


Fig. 7-6 Bias Trap Check Point and Bias Leakage

NOTE

Perform bias trap adjustment before proceeding. These adjustments are only made at 7-1/2ips tape speed. The bias oscillator frequency is 100 ±10 kHz.

HIGH position

1. Thread record test tape SCOTCH 203 on the unit.
2. Place the RECORD MODE, EQ and BIAS switch to HIGH and the unit in the record mode.
3. Place the OUTPUT switch in the TAPE position.
4. Apply a 400 Hz signal at -8 dB to the LINE IN jack.
5. Adjust capacitor FORWARD VC-101, VC-201, REVERSE VC-103, VC-203 for a peak on the level meter.
6. Turn the capacitors clockwise until a decrease of 0.5 dB is obtained.

NORMAL position

7. Thread record test tape SCOTCH 150 on the unit.
8. Place the RECORD MODE, EQ and BIAS switch to NORMAL position.
9. Adjust capacitor FORWARD VC-102, VC-202, REVERSE VC-104, VC-204 as in HIGH position.

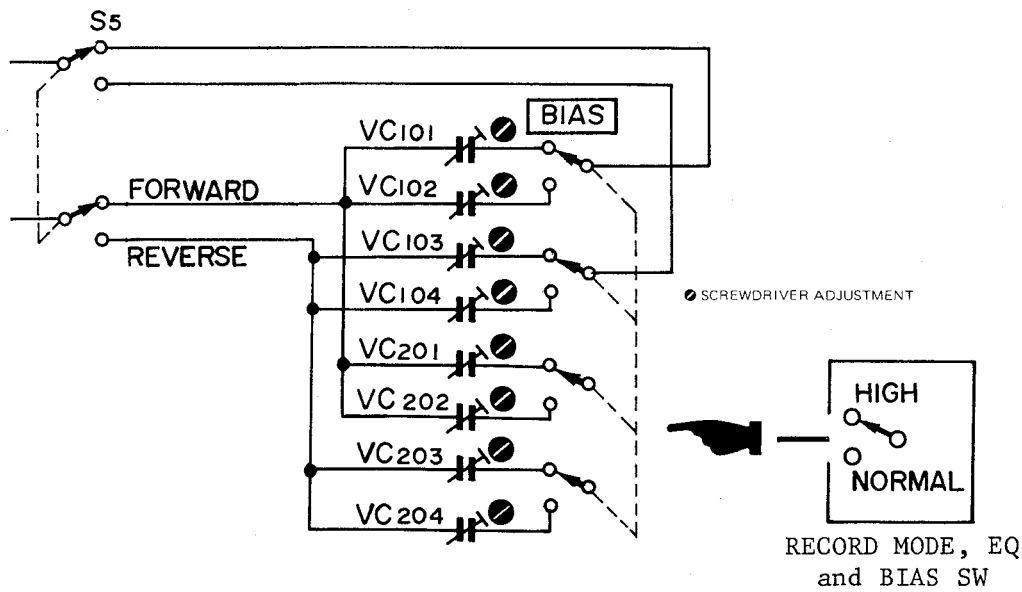


Fig. 7-7 Bias Adjustment Locations
-Diagram-

RECORD HEAD AZIMUTH ADJUSTMENT

Coarse Adjustment

NOTE

The effect of turning the azimuth screw will not immediately register on the level meter. A slight delay will be noticed. Therefore, the screw must be rotated slightly, and then pause to see the effect. Refer to HEAD ALIGNMENT FOUR WAYS in the PLAYBACK HEAD AZIMUTH ADJUSTMENT.

1. Connect a Level Meter to the LINE OUT jacks and an AF oscillator to the LINE IN jacks.
2. Place the MONITOR switch to SOURCE and adjust the AF oscillator to obtain a signal of 15 dB below the specified output level. (The level meter will indicate -23 dB.)
3. Make certain that the LINE control is at the specified input level position, then set the AF oscillator to 10 kHz.
4. Thread a record test tape on the unit and place the mode L·R switches up.
5. Place the MONITOR switch in the TAPE position.
6. Adjust the azimuth screw for maximum indication of the level meter.

Fine Adjustment

NOTE

It is absolutely essential to accomplish the coarse adjustment before using this method, to avoid phase error larger than 45°.

7. Connect the test equipment as shown in Fig. 7-8.
8. Apply a 7.5 kHz signal at -23 dB to the LINE IN jacks and record this signal.
9. Carefully adjust the azimuth screw until the oscilloscope shows the signal to be in phase.
10. Secure the screw with a drop of LOCTITE.

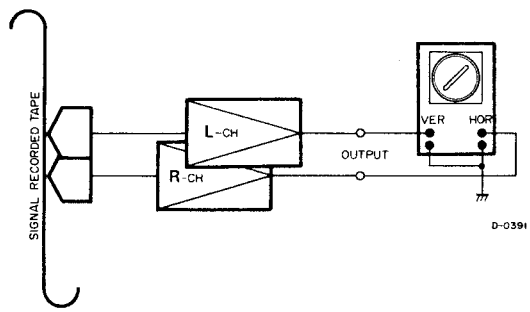


Fig. 7-8 Fine Adjustment Set-up -Head Azimuth-

RECORD LEVEL SET

The OUTPUT controls must be at the specified output level position (-8 dB at output jack).

HIGH position.

1. Apply a 400 Hz signal at -8 dB to the LINE IN jack.
2. Thread a record test tape SCOTCH 203 on the unit. Set the RECORD MODE, EQ and BIAS switches to HIGH position.
3. Place the unit in the stereo record mode with the MONITOR switch in the TAPE position, LINE controls fully clockwise.
4. Adjust FORWARD VR-103, VR-203, REVERSE VR-104, VR-204 for -8 dB signal at OUTPUT jacks.

NORMAL position

5. Apply a 400 Hz signal at -8 dB to the LINE IN jack.
6. Thread a record test tape SCOTCH 150 on the unit. Set the RECORD MODE, EQ and BIAS switches to NORMAL position.
7. Adjust VR-108, VR-208 as in HIGH position. Do not adjust in reverse mode forward only.

OVERALL FREQUENCY RESPONSE

HIGH position

1. Thread a blank SCOTCH 203 tape on unit, place RECORD MODE, EQ and BIAS switches at HIGH, tape SPEED at 7-1/2 19cm ⎍ position.
2. Apply a signal swept from 20Hz∿20kHz at -33 dB to LINE IN jack and record it on the test tape.
3. Adjust L-103, L-203 for best response.
4. Repeat above procedures for 3-3/4ips using a signal swept from 50 Hz∿7.5kHz.

NORMAL position

5. Thread a blank SCOTCH 150 tape on the unit, place RECORD MODE, EQ and BIAS switches at NORMAL, tape SPEED at 3-3/4 9.5cm ⎍ position.
6. Repeat overall response check at both speeds and both directions.

NOTE

If further adjustment is required, C-148, C-149 must be changed, if the high end response is too high, a lower value capacitor must be installed.

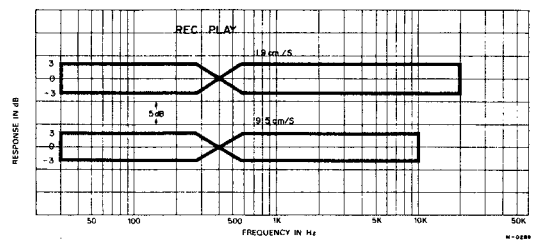


Fig. 7-9 Frequency Response -Record-

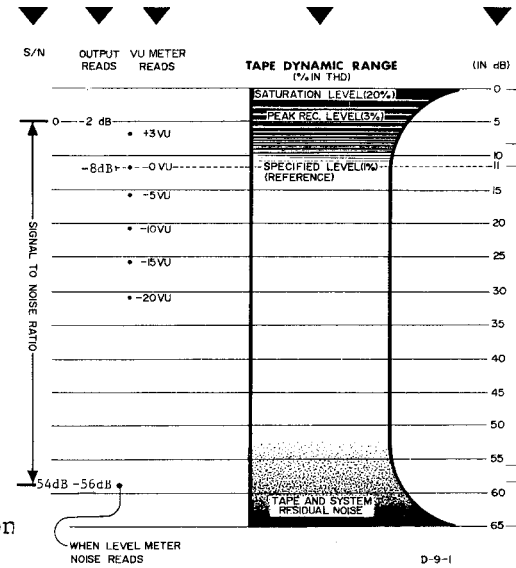
SIGNAL TO NOISE RATIO

PLAYBACK

IMPORTANT

OUTPUT control should be at specified output level. The signal to noise ratio must meet factory standards. The values given are obtained using an unweighted level meter while the supply and take-up motors have voltage applied but are not rotating. The values are with reference to a 3% THD peak recording level.

1. Thread a tape on the unit, leaving the tape outside the capstan and pinch roller.
2. Place the unit in the PLAY mode (►) (the tape will not move).
3. The level meter connected to the LINE OUT jacks should indicate -56 dB or less.
4. This corresponds to a signal to noise ratio of 48 dB(difference between residual noise -56 dB and specified output level -8 dB for 1% THD). For a 3% THD signal to noise ratio, 6 dB is added, giving 54 dB(3% THD is 6 dB above 1% THD level).



Signal/Noise Computation

OVERALL

IMPORTANT

Clean and demagnetize the heads before proceeding. It is extremely important that all tests described in the proceeding paragraphs have been completed and that all controls adjusted are left unalterd.

1. Thread a record test tape (Scotch 203) on the unit.
2. Remove the AF oscillator from the LINE IN jacks.
3. Place the unit in the RECORD mode with no signal applied.
4. Note the point on the index counter where recording begins.
5. Rewind the tape and play it back.
6. The noise level as indicated on the level meter should be -54 dB or less.

NOTE

Bias, erase and playback amplifier noise are all included in this measurement.
All frequencies between 40 Hz and 15 kHz are measured unweighted.

ERASE EFFICIENCY

NOTE

To measure erase efficiency, a 1 kHz band pass filter must be used.

Due to the high level of this signal, it is recommended that only a short recording be made (approximately 30 seconds) to prevent damage to the VU meter.

1. Apply a 1 kHz signal at 0 dB to the LINE IN jacks.
2. Place the unit in record mode and record this signal at 15ips.
3. Rewind the recording to the beginning and remove the AF oscillator from the LINE IN jacks.
4. Place the unit in record mode and record over this portion of tape again.
5. Rewind the tape to the starting point and connect a level meter to the LINE OUT jack through the 1 kHz band pass filter.
6. Play the erased protion of the tape.
7. The level meter should indicate -70 dB or less.

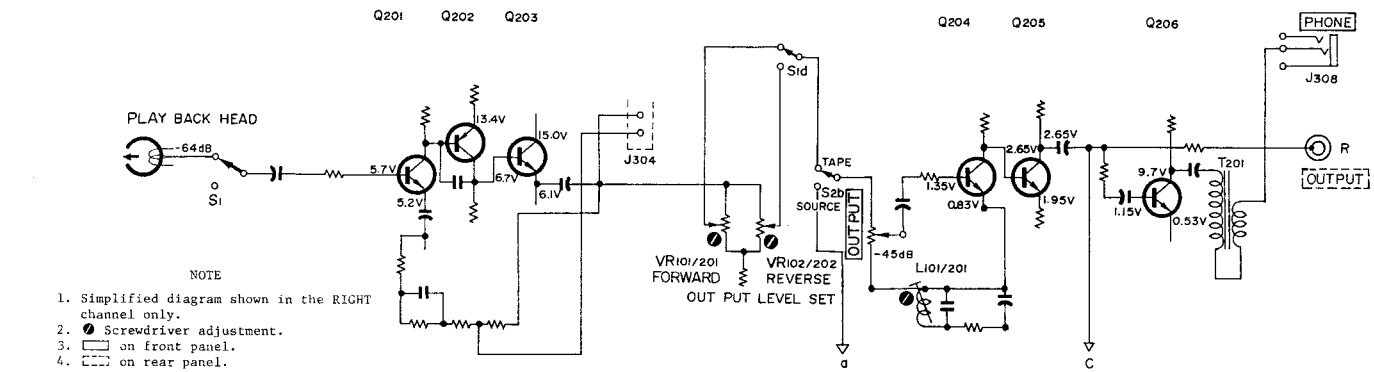
LEVEL VARIATIONS

IMPORTANT

Using Scotch 203 test tape, recorded at the specified level setting, during playback the output level variations should not exceed those shown in the below chart.

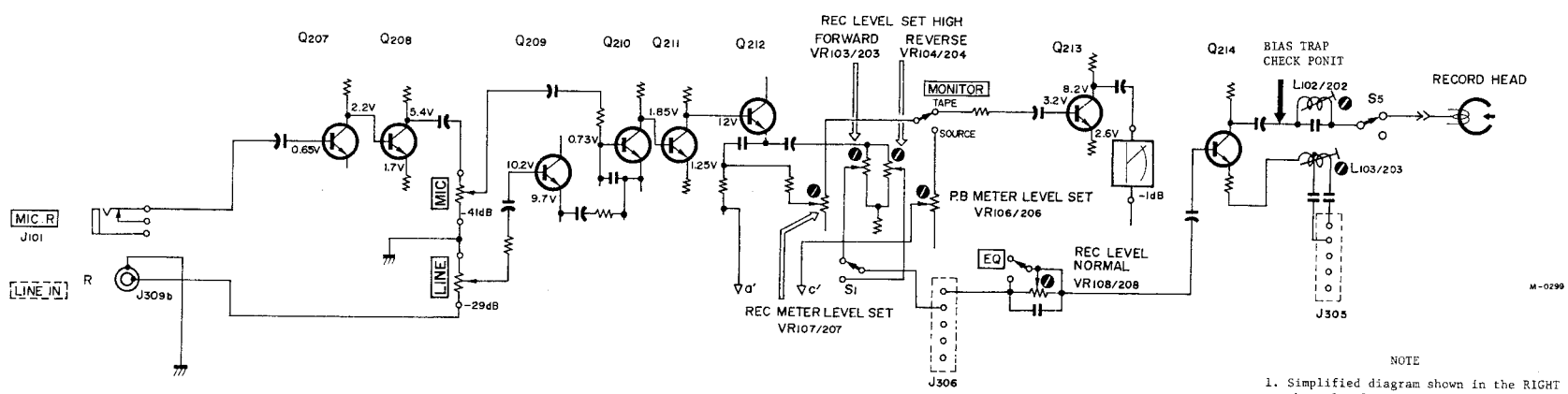
7-1/2ips	10kHz	1.5dB or less
3-3/4ips	5kHz	1dB or less

SIMPLIFIED DIAGRM
A-4070 G



NOTE

1. Simplified diagram shown in the RIGHT channel only.
2. ◐ Screwdriver adjustment.
3. ▭ on front panel.
4. ┅┅ on rear panel.



NOTE

1. Simplified diagram shown in the RIGHT channel only.
2. ◐ Screwdriver adjustment.
3. ▭ on front panel.
4. ┅┅ on rear panel.

8 PREVENTIVE MAINTENANCE

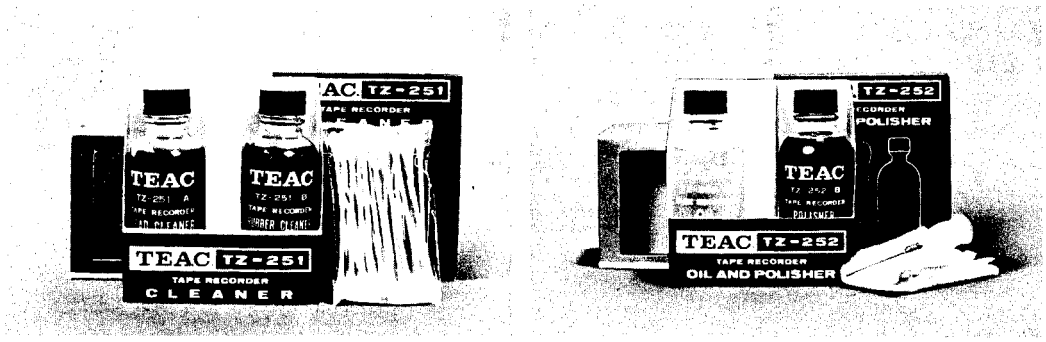


Fig. 8-1 Manintenance Equipment

CLEANING

If excess oxide accumulates on the surface of tape path components, normal operation and characteristics cannot be expected. Periodic cleaning should be done with proper cleaning materials. Refer to Operating Instructions.

DEMAGNETIZATION

Metal parts in contact with the tape will become magnetized after long periods of use(except erase head). Magnetization of record/ playback heads causes noise in recording and reproduction and heads should be demagnetized at every 50 hours of use, and before any important recording is done. Refer to Operating Instructions.

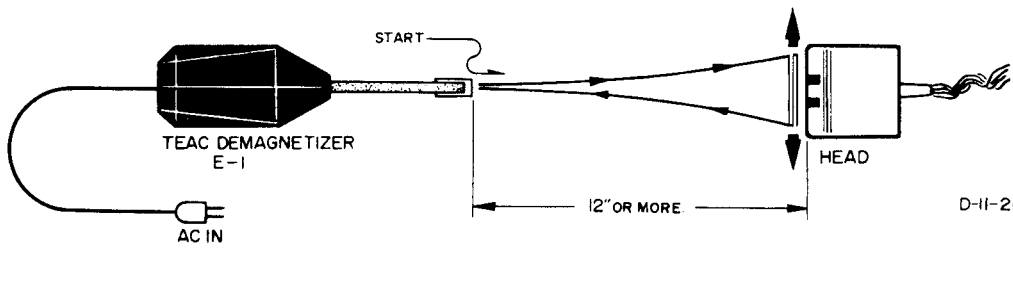


Fig. 8-2 Demagnetization

LUBRICATION

Under normal conditions the unit will not require lubrication. Most of the bearings and bushings are of the oilless type. Since there are many rubber parts in the transport mechanism, excessive or improper lubrication could cause problems. If lubrication is required, the following points should be lubricated:

Capstan bushing, pinch roller shaft ..... 1 drop
Motor ..... 1∿2 drops in the plastic tubes

Parts to be lubricated should be cleaned and old oil and dirt removed before relubricating. Observe instructions as to type of oil, points to be lubricating.

Motors should be lubricated immediately after use while still warm. After oiling motors keep the unit in the horizontal position for 2∿3 hours to allow thorough absorption of oil.

VENTILATION

During use the face plate of the A-4070G may become quite warm to the touch, this entirely normal.
As long as the air vents in the rear plate are unobstructed, the unit will not overheat.
However, if the unit is placed snugly against a wall, or free air passage is prevented, overheating and possible damage may occur.

9 TROUBLE SHOOTING

The following guide lists specific difficulties that could occur in the A-4070G.
Several possible causes are listed for each malfunction.
Visually inspect the unit for any damage such as broken or burned components or wiring, loose connections, etc.

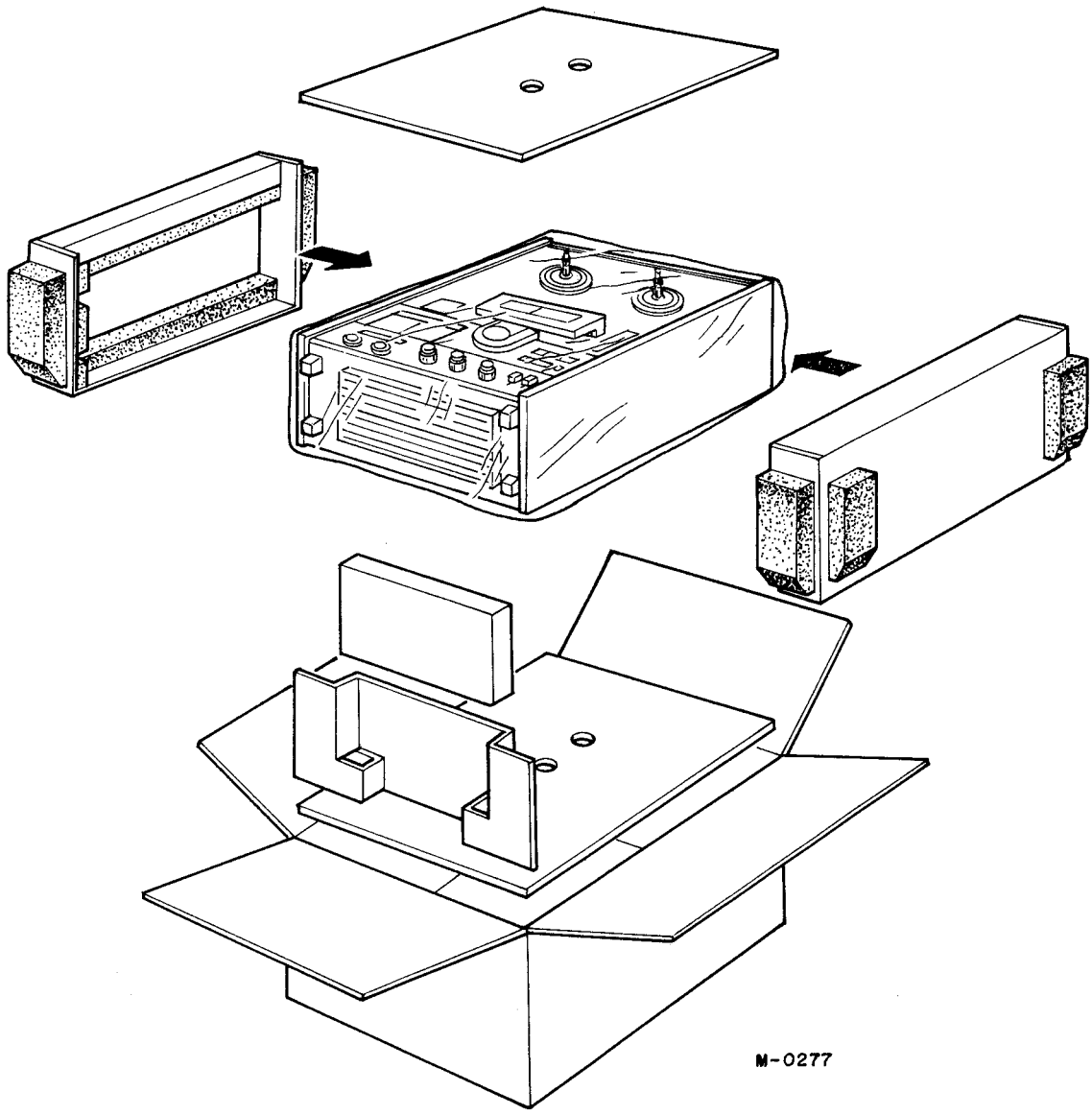
MALFUNCTION	POSSIBLE SOURCE OF TROUBLE	CORRECTIVE PROCEDURE
Capstan fails to turn	Belt off or slipping, line fuse, shut off SW (S-805, S-806), phase advance cap. (C-801), shut off relay (K-8a), reverse relay(K-2a ∿b), capstan motor, capstan assy.	Refer to schematic diagram and repair or replace the defective components.
Pinch roller fails to contact capstan in play mode	Remote control jumper plug not installed or loose, stop SW(S-804), play button (S-801), delay relay(K-4a), fast relay(K-5c), play relay (K-1b), micro SW(S-807), solenoid.	The normal DC resistance of the capstan solenoid is 1.3 kΩ. Refer to schematic diagram and repair or replace the defective components.
Right reel does not rotate in the forward play mode	Reverse relay(K-2c), fast relay(K-5a), resistor(R-801).	Refer to schematic diagram and repair or replace the defective components.
Left reel does not rotate in the forward	Reverse relay(K-2c), fast relay(K-5b), resistors(R-802,R-803).	Refer to schematic diagram and repair or replace the defective components.
Right reel does not rotate in the reverse play mode	Reverse relay(K-2c), fast relay(K-5a), Resistor(R-802, R-803)	Refer to schematic diagram and repair or replace the defective components.
Left reel does not rotate in the reverse play mode	Reverse relay(K-2d), fast relay(K-5b), resistor(R-801).	Repair or replace defective components.
Tape transport does not operate in fast forward	Fast relay(K-5,K-11a), fast SW(S-803), Diodes(D-8,D-6).	Refer to schematic diagram and repair or replace the defective components.
No delay	Delay relay(K-4), cap.(C-807,C-808), reverse relay(K-3c∿d), resistor (R-805), Diode(D-5).	Repair or replace defective components.
Wow and flutter	Defective tape, dirty or defective pinch roller, oily or defective belt, reel motor tension.	Clean or replace defective components. Adjust motor tension.
Incorrect tape speed	50/60Hz cycle change knob in wrong position. Incorrect pinch roller pressure.	Reset change knob. Adjust pinch roller pressure.

MALFUNCTION	POSSIBLE SOURCE OF TROUBLE	CORRECTIVE PROCEDURE
No muting	Muting relay(K-12), muting diagram, delay relay(K-4c), play relay(K-1d), jack loose(J-303).	Refer to muting diagram, and replace the defective components.
Both reel motors fail to operate	Play relay(K-1a)	Replace the defective components.
No forward play	Remote control jumper plug missing or loose, play button(S-801), play relay (K-1), diode(D-4), sensing ampl.	Repair or replace defective components.
No reverse play	Play button(S-802), reverse relay(K-2,K-3), diode(D-4), sensing ampl.	Repair or replace defective components.
Auto-reverse does not function with and sensing fail	Fail length too short, sensing post dirty, sensing ampl., sensing relay(K-6).	Fail should be 1/2" long, clean sensing post.
Repeat operation faulty	Fail length too short, sensing post dirty, repeat switch(S-8), not on or faulty, sensing relay(K-7), sensing ampl.	There is a built-in 40 sec. recycling period for the repeat unit. It will not operate if a repeat cycle of less than 40 seconds is required.
No playback	Playback head dirty, amplifier to deck connection (J-301), monitor switch, playback ampl., Delay relay (K-4c), play relay(K-1d), muting relay(K-12), muting diagram.	Refer to playback ampl., voltage chart.
Playback noise or hum	Faulty connections, head selector switch(S-1a∿b) faulty playback head, and ampl.	Repair or replace defective components.
Noise or hum during record	Magnetized head, faulty connections(J-301), MIC level set to max., record ampl. bias osc.	Demagnetize and clean head, repair or replace defective components.
No record or no erase	Bias osc., erase/record head dirty, record jack loose(J-302), master VR jack loose(J-306), record relay(K-301), record Sw. (S-10), record ampl., resistor(R-303), record selector switch(S-6,S-7).	Refer to schematic diagram and repair or replace the defective components. Voltage chart.

10 PACKING FOR SHIPMENT

SHIPPING INSTRUCTIONS

If the unit is to be sent back to the TEAC factory (service department) for repair, carefully pack as shown below.



TEAC® A-4070G

STEREO TAPE DECK

PARTS LIST

REPLACEMENT INFORMATION

Replacement parts are available through your nearest TEAC dealer or directly from the TEAC office.
Changes are constantly being made to make TEAC products better and more reliable.
Therefore, when ordering parts, always include the following information:

MODEL *SERIAL NO.* *REF.NO.* *PARTS NO.* *DESCRIPTION*

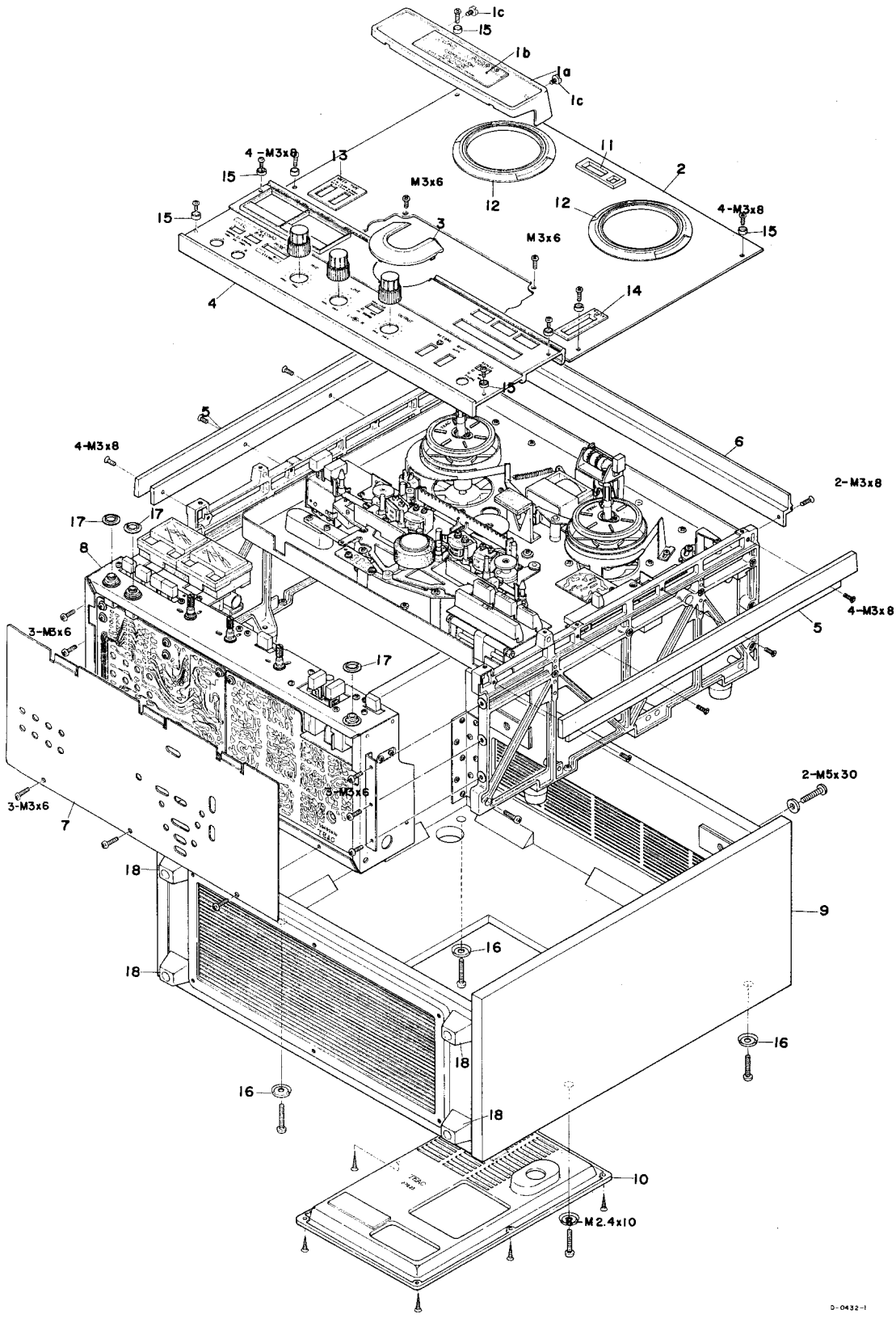
K-098

TEAC CORPORATION

EXPLODED VIEW 1

A-4070G

TRIM PARTS



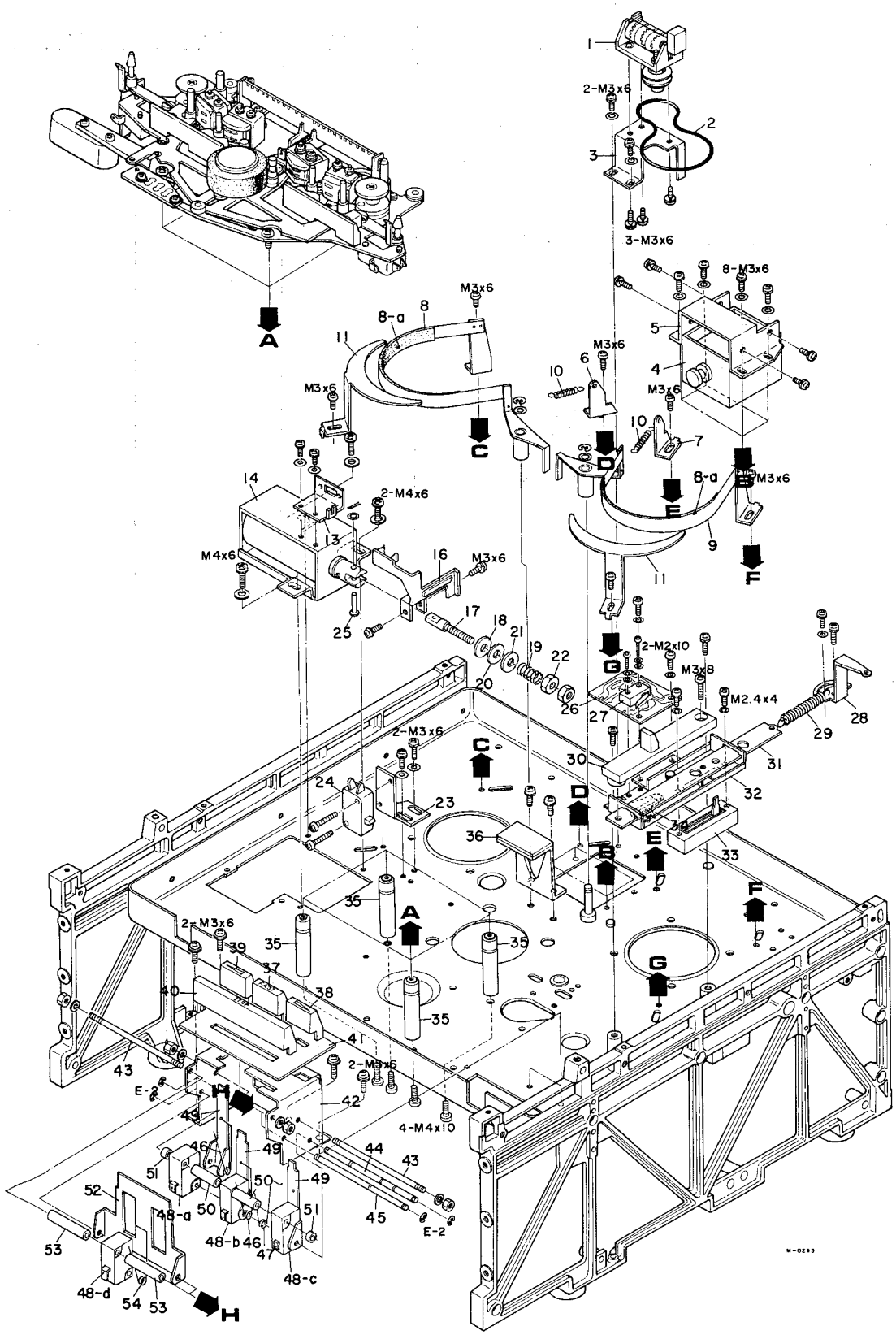
TRIM PARTS

REF. NO.	TEAC PARTS NO.	DESCRIPTION	1st	2nd	3rd
	50500741	Head Housing Assy			
1-1a	50135531	Head Housing			
1-1b	50266380	Head Housing Plate (DM,EX)			
	50266390	Head Housing Plate (TCA only)			
1-1c		Head Housing Screw (3×20)			
1- 1	50135-31	Head Housing			
1- 2	50113310	Panel, Trim, Assy			
1- 3	50142171	Escutcheon, Pinch Roller			
1- 4	50117260	Panel, Control, Assy			
1- 5	50113320	Trim Sash, Side			
1- 6	50113330	Trim Sash, Upper			
1- 7	50235172	Top Cover			
1- 8		Preamplifier			
1- 9	50287533	Wooden Case			
1-10	50276230	Rear Air Vent			
1-11	50277020	Escutcheon, Index Counter			
1-12	50162791	Escutcheon, Reel Table			
1-13	50279821	Escutcheon, Switch			
1-14	50152890	Escutcheon, Pause Lever			
1-15	50273671	Trim Washer			
1-16	50287600	Washer, Deck Mount			
1-17	50272610	Insulator Washer (A)			
1-18	50287570	Mount Foot			

EXPLODED VIEW 2

A-4070G

ABOVE MAIN CHASSIS



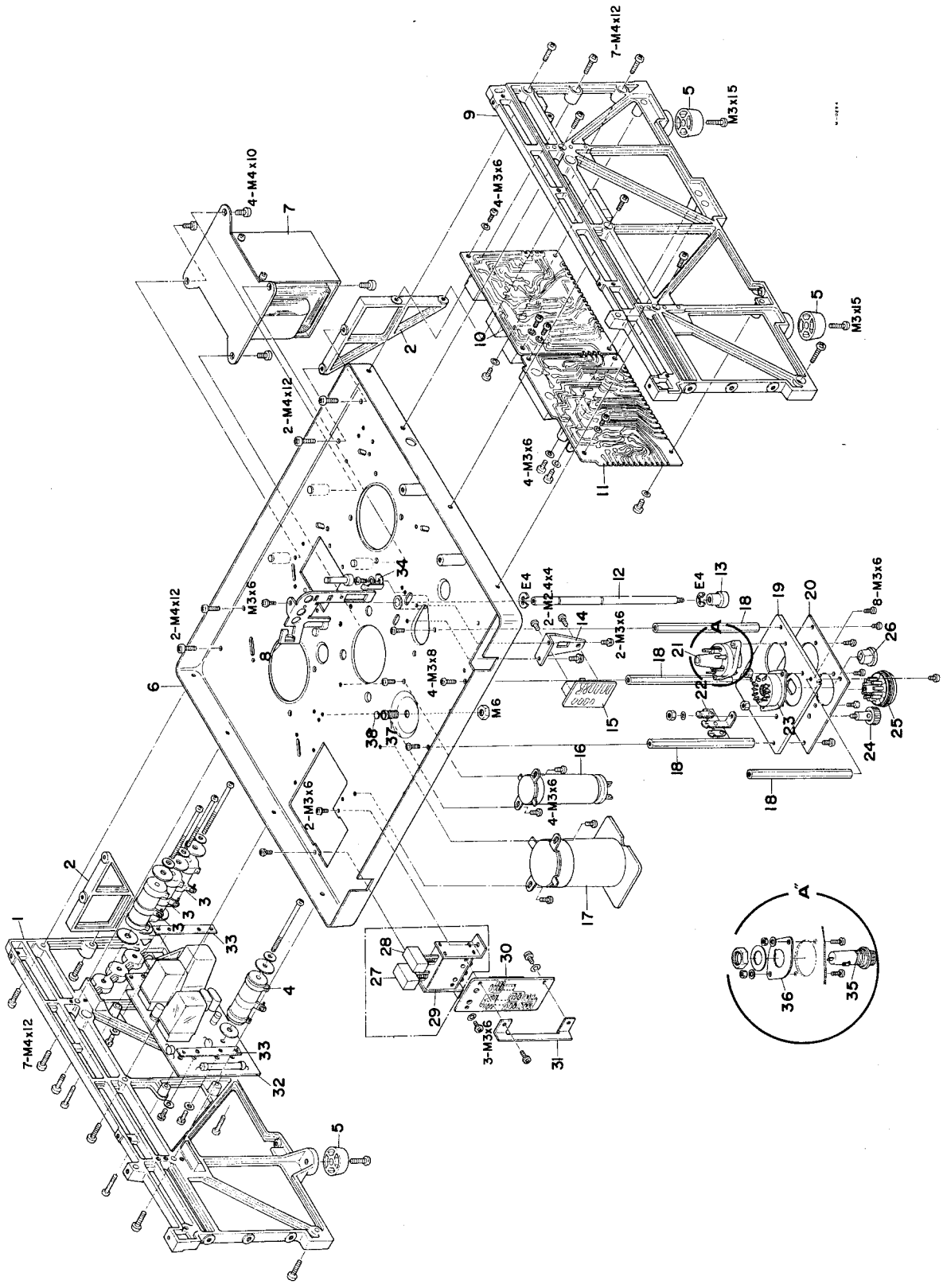
ABOVE MAIN CHASSIS

REF. NO.	TEAC PARTS NO.	DESCRIPTION	1st	2nd	3rd
2- 1	50585130	Index Counter			
2- 2	50271420	Belt, Counter			
2- 3	50279590	Bracket, Index Counter			
2- 4	50616490	Solenoid, Brake			
2- 5	50235040	Bracket, Brake Solenoid			
2- 6	50173170	Bracket, Brake Spring, L			
2- 7	50173180	Bracket, Brake Spring, R			
2- 8	50173271	Brake Arm Assy, L			
2- 8a	50173200	Brake Arm, L			
	50173590	Brake Felt			
2- 9	50173281	Brake Arm Assy, R			
	50173210	Brake Arm, R			
2-10	50220441	Spring, Brake			
2-11	50173090	Brake Retainer			
2-13	50235022	Bracket, Slide SW,B			
2-14	50616582	Solenoid, Capstan			
2-16	50234991	SW Actuator Bracket Assy			
2-17	50142050	Screw, Pressure			
2-18	50142070	Felt Washer			
2-19	50221450	Spring, Pressure			
2-20	50142090	Washer, B			
2-21	50142080	Washer, A			
2-22	50142101	Lock Nut			
2-23	50234980	Bracket, Micro SW, A			
2-24	50446180	SW, Micro			
2-25	50142060	Pin, Plunger			
2-26	50489180	PC Board Assy, Sensing			
2-27	50446320	SW, Micro			
2-28	50279630	Bracket, Pause Spring			
2-29	50221480	Spring, Pause			
2-30	50253550	Lever, Pause			
2-31	50279700	Plate, Slide			
2-32	50279742	Slide Frame			
2-33	50533710	Potentiometer, Slide, Dual 10k			
2-34	50331450	Lock Plate, Pause			
2-35	50241750	Stand-off, Head Assy			
2-36	50279890	Bracket, Panel Support			
	50279570	Panel Cushion			
2-37	50252990	Push Button, Fast Forward			
2-38	50252980	Push Button, Forward			
2-39	50253000	Push Button, Reverse			
2-40	50252970	Push Button, Stop			
2-41	50279580	Rubber Plate			
2-42	50190731	SW Housing			
2-43	50190740	SW Mount Rod, A			
2-44	50190750	SW Mount Rod, B			
2-45	50190760	SW Mount Rod, C			
2-46	50221020	Spring, Control, B			
2-47	50221010	Spring, Control, C			
2-48a	50446310	SW, Micro			
2-48b	50446310	SW, Micro			
2-48c	50446100	SW, Micro			
2-48d	50446400	SW, Micro			
2-49	50190770	Operate Lever A			
2-50	50241030	Spacer, B			
2-51	50241020	Spacer, A			
2-52	50190780	Operate Lever B			
2-53	50241040	Spacer, C			
2-54	50221000	Spring, Control, A			

EXPLODED VIEW 3

A-4070G

BELOW MAIN CHASSIS



BELOW MAIN CHASSIS

REF. NO.	TEAC PARTS NO.	DESCRIPTION	1st	2nd	3rd
3- 1	50114050	Side Frame, Left			
3- 2	50236660	Reinforcing Frame			
3- 3	50522220	Resistor, Wire Wound 60Ω 20W			
3- 4	50522080	Resistor, Wire Wound 1kΩ 20W			
3- 5	50283830	Mount Foot			
3- 6	50235242	Chassis, Transport			
3- 7	50561900	Transformer, Power			
3- 8	50125282	Belt Changer			
3- 9	50112751	Side Frame, Right			
3-10	50489160	PC Board Assy, Relay A			
3-11	50490580	PC Board Assy, Relay B			
3-12	50125301	Shaft, Belt Change			
3-13	50125310	Knob, Belt Change			
3-14	50235030	Bracket, SW A			
3-15	50489100	PC Board Assy, SW A			
	50482790	PC Board, SW A			
	50444300	SW, Slide 6C2T			
3-16	50553020	Cap., Elec. 220 + 100μF 160V			
3-17	50545750	Cap., MP (2.4 + 0.8μF) ×2			
	50482780	PC Board, MP Capacitor			
3-18	50241740	Stand-off			
3-19	50234970	Plate, Socket			
3-20	50264790	Trim Panel, Plastic			
3-21	50412143	Fuse Holder, Voltage Selection			
	50411140	Fuse, 2A			
3-22	50452060	Terminal Strip, 1L2P			
3-23	50432700	Socket, 11P Female			
3-24	50454071	Post, GND Terminal			
3-25	50432690	Dummy Plug, 11P, Male			
3-26	50271670	Grommet			
3-27	50253530	Push Button			
3-28	50253530	Push Button			
3-29	50443641	Two Push SW Assy			
3-30	50482851	PC Board, Push SW Assy			
	50444310	SW, Slide 8C2T			
	50444320	SW, Slide 4C2T			
3-31	50235140	Bracket, PC Board			
3-32	50490590	PC Board Assy, Power Supply			
3-33	50236790	Plate, PC Board			
3-34	50221460	Spring, Click			
3-35	50412130	Fuse Holder (TCA only)			
	50411140	Fuse, 2A			
3-36	50419010	Fuse Post Adaptor (TCA only)			
3-37	50125580	Screw, Thrust			
3-38	50125590	Thrust Plate Screw			

EXPLODED VIEW 4

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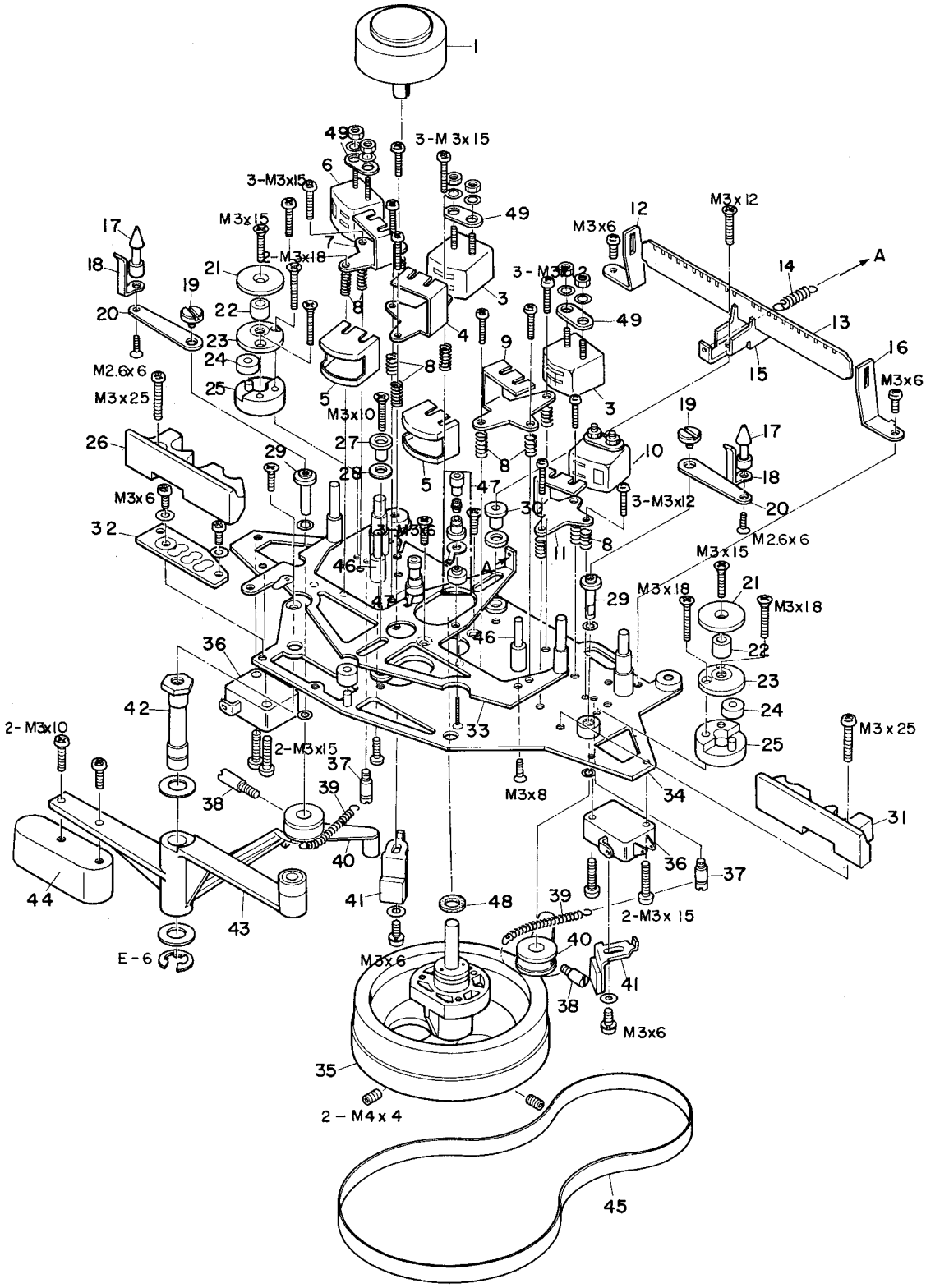
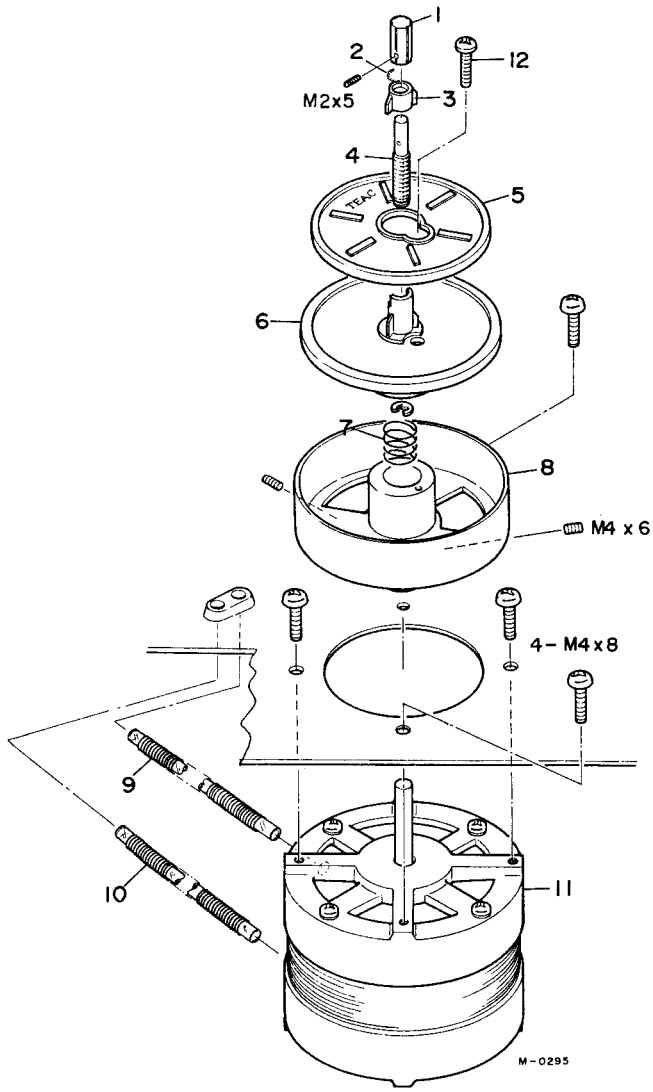
HEAD BASE ASSY



HEAD BASE ASSY

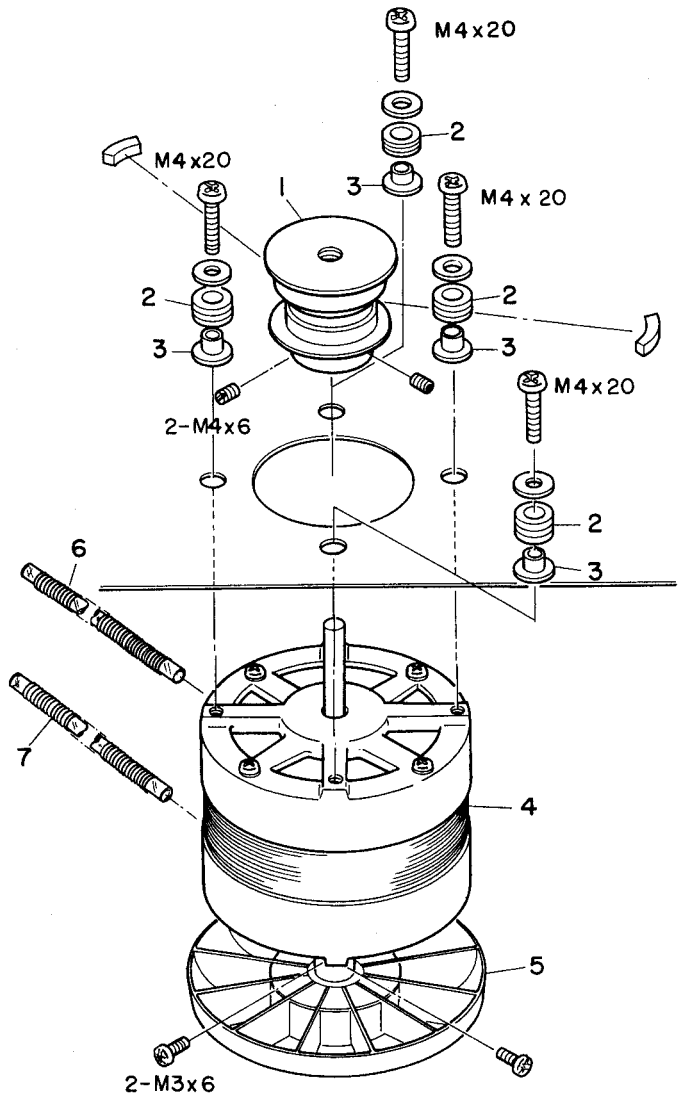
REF. NO.	TEAC PARTS NO.	DESCRIPTION	1st	2nd	3rd
4- 1	50140200	Pinch Roller Assy			
	50135462	Head Base Assy			
4- 3	50667300	Head, Playback			
4- 4	50135411	Bracket, PB Head, B			
4- 5	50679870	Head Shield, Front			
4- 6	50667410	Head, E/R, Forward			
4- 7	50135421	Bracket, E/R Head, B			
4- 8	50221400	Spring, A, Head			
	50221410	Spring, Head, B			
4- 9	50135391	Bracket, PB Head, A			
4-10	50667420	Head, E/R, Reverse			
4-11	50135401	Bracket, E/R Head, A			
4-12	50234950	Bracket, Head PC Board, L			
4-13	50482820	PC Board, Head			
4-14	50221420	Spring, Lifter			
4-15	50152840	Bracket, Lifter Spring			
4-16	50234960	Bracket, Head PC Board, R			
4-17	50183440	Tape Guide Post			
4-18	50330170	Tape Retainer Arm			
4-19	50183431	Mount Screw, Tension Arm			
4-20	50183421	Tension Arm			
4-21	50135501	Guide Flange, A			
4-22	50135490	Guide Spacer			
4-23	50135481	Guide Flange, B			
4-24	50183520	Cushion Ring, Rubber			
4-25	50183532	Guide Base			
4-26	50279310	Lower Head Protector, L			
4-27	50152850	Shoulder Washer, Slide Base, B			
4-28	50152821	Washer			
4-29	50183451	Tension Arm Shaft			
4-30	50152831	Shoulder Washer, Slide Base, A			
4-31	50279800	Lower Head Protector, R			
4-32	50482800	PC Board, Sensing, B			
4-33	50152860	Slide Base Assy			
	50482810	Sensing Print A			
4-34	50135462	Head Base			
4-35	50125200	Capstan Assy			
	50123692	Capstan Shaft			
	50124011	Flywheel, Capstan			
	50123900	Oil Pad			
4-36	50446180	SW, Micro, (V-1A-44)			
4-37	50183510	Pin, Tension Arm Spring			
4-38	50183490	Pin, Spring Retaining Drum			
4-39	50221390	Spring, Tension Arm Spring			
4-40	50183462	Balance Arm Assy			
4-41	50234940	Bracket, Magnet			
	50183900	Magnet			
4-42	50142131	Roller Arm Shaft			
4-43	50142150	Pinch Roller Arm			
4-44	50142350	Balance Weight			
4-45	50125210	Belt, Capstan			
4-46	50135510	Guide Post			
4-47	50490810	Sensing Post Assy			
	50448760	Sensing Cap			
	50448881	Sensing Pipe			
	50448770	Sensing Body			
	50448860	Sensing Terminal			
	50279611	Sensing Base			
4-48	50123900	Sponge Oiler			
4-49	50134390	Spacer, E/R Head			

REEL MOTOR ASSY



REF. NO.	TEAC PARTS NO.	DESCRIPTION	1st	2nd	3rd
5- 1	50163321	Knob, Reel Lock, B			
5- 2	50221610	Spring, Slip			
5- 3	50163090	Reel Lock			
5- 4	50163331	Shaft, Reel Lock, B			
5- 5	50163340	Reel Sheet			
5- 6	50163291	Reel Table			
5- 7	50221650	Spring, Height Adjust			
5- 8	50163311	Brake Drum			
5- 9	50221630	Tube Spring, A			
5-10	50221640	Tube Spring, B			
5-11	71041020	Motor, Reel			
5-12	50213610	Screw, M4 ×15 (Black painted)			

CAPSTAN MOTOR ASSY



D-0436-1

REF. NO.	TEAC PARTS NO.	DESCRIPTION	1st	2nd	3rd
	50120420	Cap Motor Assy			
6-1	50125232	Pulley, Motor			
6-2	50173140	Rubber Cushion Ring			
6-3	50173160	Shoulder Washer			
6-4	71021010	Motor, Capstan			
6-5	50123981	Fan			
6-6	50221630	Tube Spring, A			
6-7	50221640	Tube Spring, B			

EXPLODED VIEW 7

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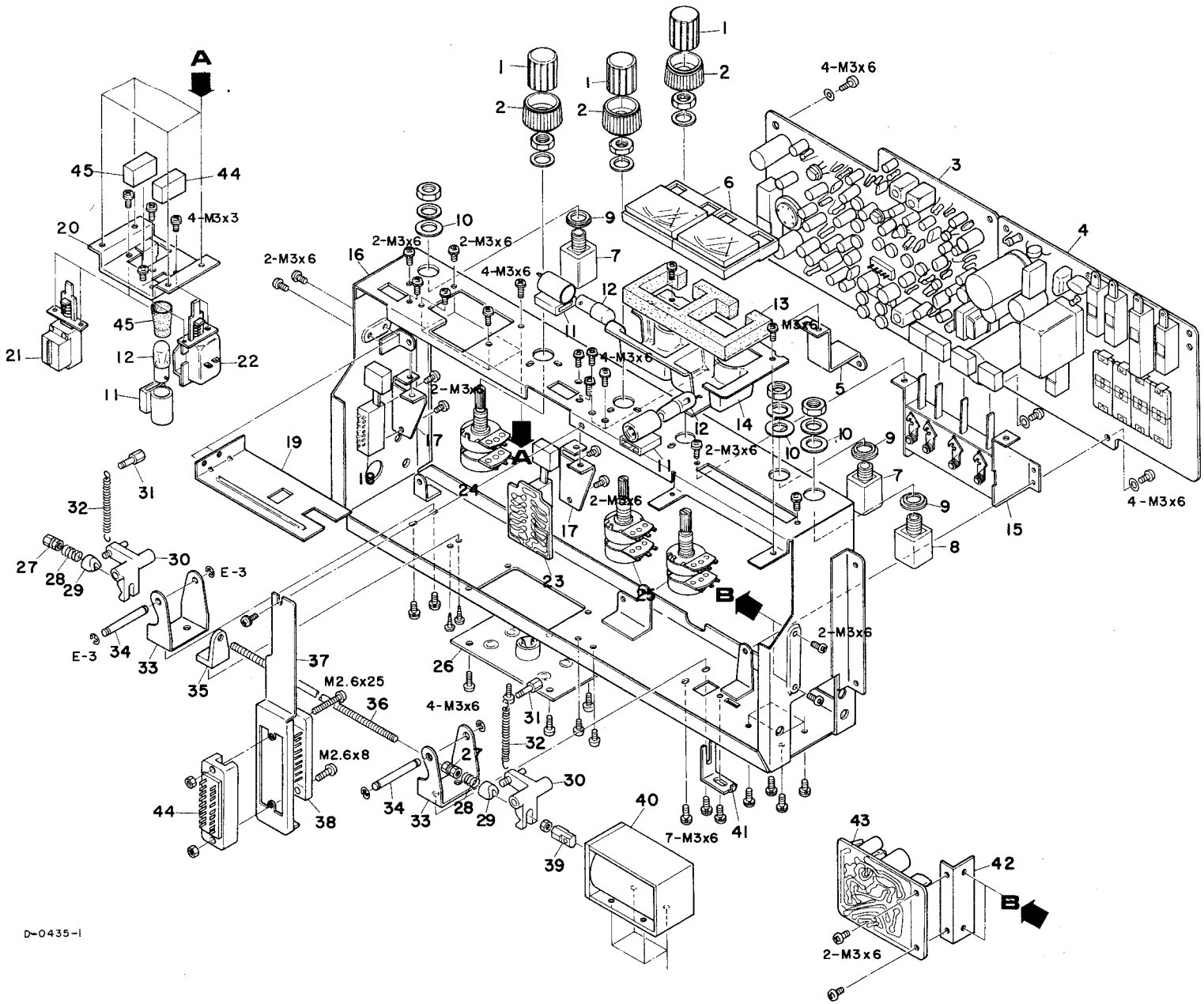
PREAMPLIFIER CHASSIS



PREAMPLIFIER CHASSIS

REF. NO.	TEAC PARTS NO.	DESCRIPTION	1st	2nd	3rd
7- 1	50253420	Knob, Inner			
7- 2	50243431	Knob, Outer			
7- 3	50490601	PC Board Assy, Preamplifier			
7- 4	50490610	PC Board Assy, Bias Adjust			
7- 5	50235080	Bracket, PC Board, E			
7- 6	50581331	VU Meter			
7- 7	50430230	Jack, Phone, Single, Microphone			
7- 8	50432440	Jack, Phone, 3 cond., Headphone			
7- 9	50272620	Insulator Washer, B			
7-10	50230560	Fiber Washer			
7-11	50415250	Socket, Lamp			
7-12	50414510	Lamp, 8V			
7-13	50279840	Meter Cushion			
7-14	50279851	Meter Holder			
7-15	50448840	Four Push SW Assy			
7-16	50235162	Chassis, Preamplifier			
7-17	50235180	Bracket, Push SW Assy			
7-18	50443240	SW, Push, Repeat			
7-19	50135560	Shield Plate			
7-20	50448740	Plate, Rec SW			
7-21	50443660	SW, Push, Power			
7-22	50443360	SW, Push, Record			
7-23	50489210	PC Board Assy, Tape Monitor SW			
	50482930	PC Board, Tape Monitor SW			
7-24	50537170	Potentiometer, Dual, 100k (A)			
7-25	50537160	Potentiometer, Dual, 10k (A)			
7-26	50434610	Jack, Pin, 4P, with DIN Connector			
7-27	50210490	Lock Nut, Female			
	50210480	Lock Nut, Male			
7-28	50221490	Spring, Pressure			
7-29	50279780	Actuator Collar			
7-30	50183601	Actuator Arm			
7-31	50221510	Spring Retaining Post			
7-32	50221500	Spring, Actuator Arm			
7-33	50183590	Actuator Arm Holder			
7-34	50183610	Actuator Arm Shaft			
7-35	50183620	Guide Bracket			
7-36	50279751	Shaft			
7-37	50235190	Bracket, 20P Connector			
7-38	50432810	Connector, 20P, Male			
7-39	50279640	Adaptor, Solenoid			
7-40	50616510	Solenoid			
7-41	50279900	Bracket, Limit Stop			
7-42	50233800	Bracket, Bias Osc. Assy			
7-43	50489620	PC Board Assy, Bias Osc.			
7-44	50432820	Connector, 20P, Female			
7-45	50415290	Cover, Record Lamp			

PRINTED CIRCUIT BOARD AND PARTS LIST

A-4070G

REPLACEMENT INFORMATION

Replacement parts are available through your nearest TEAC dealer or directly from the TEAC office.
Changes are constantly being made to make TEAC products better and more reliable.
Therefore, when ordering parts, always include the following information:

MODEL *SERIAL NO.* *REF.NO.* *PARTS NO.* *DESCRIPTION*

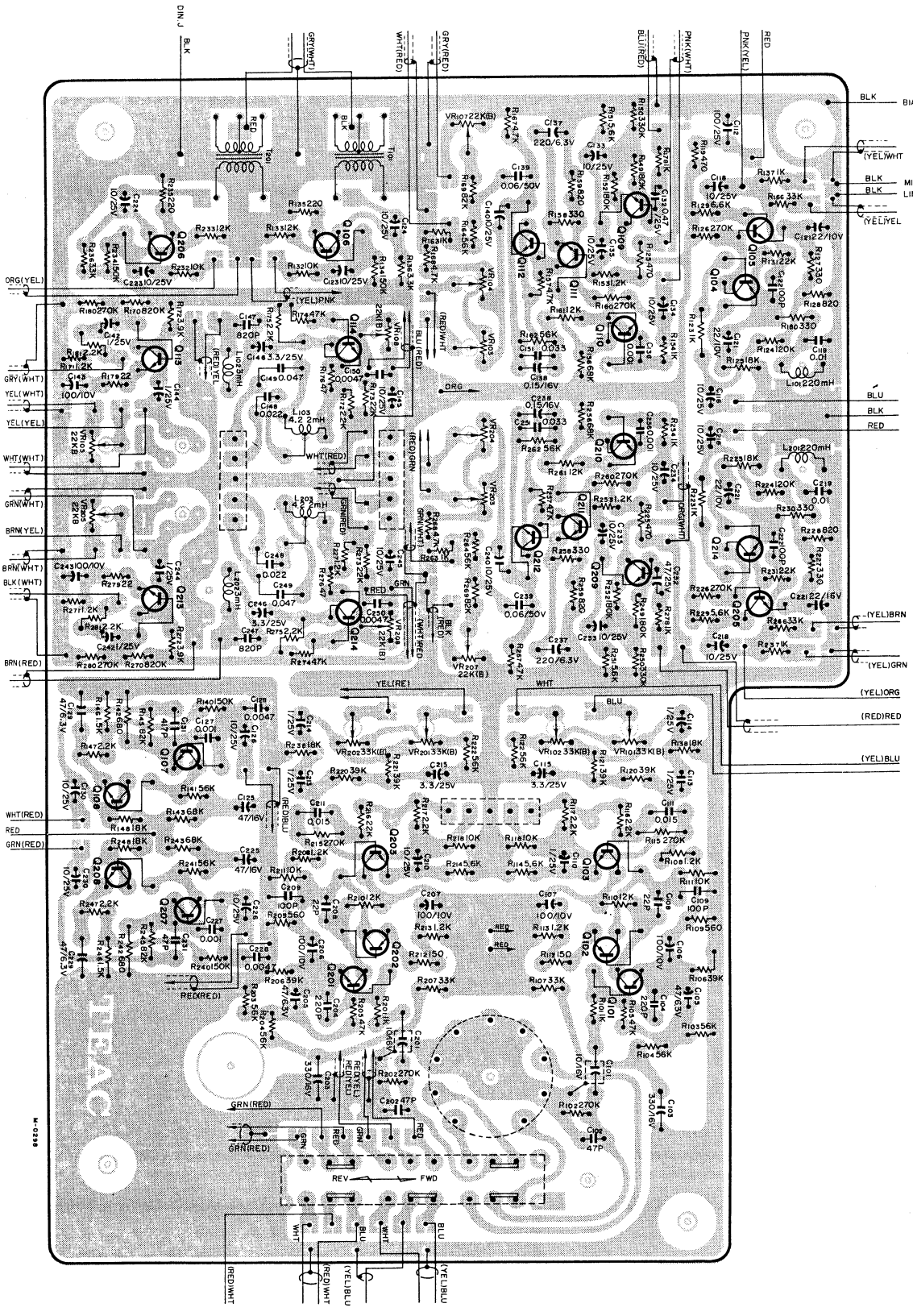
K-098

TEAC CORPORATION

PC BOARD

A-4070G

PREAMPLIFIER



PREAMPLIFIER *(CONTINUED)*

CIRCUIT REF.NO.	TEAC PARTS NO.	DESCRIPTION	1st	2nd	3rd
	50490600	PC Board Assy, Preamplifier			
	50221510	Spring Hook			
S1	50444130	SW, Slide (6PDT)			
J301a	50432730	Socket, 9P			
	50429060	Clamp, for 9P Socket			
J301b	50432740	Plug, 9P			
J304	50432780	Connector, 5P Male, (White)			
J305	50432790	Connector, 5P Male (Red)			
J306	50432800	Connector, 5P Male (Black)			
T101/201	50562140	Transformer, Headphone			
		SILICON TRANSISTORS			
Q101/201	50424340	2SC1000-BL			
Q102/202	50423650	2SA494-Y			
Q103/203	50423510	2SC733-Y			
Q104/204	50423510	2SC733-Y			
Q105/205	50423510	2SC733-Y			
Q106/206	50423510	2SC733-Y			
Q107/207	50424340	2SC1000-BL			
Q108/208	50424340	2SC1000-BL			
Q109/209	50424340	2SC1000-BL			
Q110/210	50424340	2SC1000-BL			
Q111/211	50423510	2SC733-Y			
Q112/212	50423510	2SC733-Y			
Q113/213	50424440	2SC733-BL			
Q114/214	50423510	2SC733-Y			
		CARBON RESISTORS			
		ALL RESISTORS IN OHMS, 10% TOLERANCE, 1/4 WATTS UNLESS OTHERWISE NOTED.			
R101/201	50515340	1k			
R102/202	50515700	270k			
R103/203	50518240	56k			
R104/204	50518240	56k			
R105/205	50515590	47k			
R106/206	50515580	39k			
R107/207	50515570	33k			
R108/208	50515350	1.2k			
R109/209	50515310	560			
R110/210	50515500	12k			
R111/211	50515490	10k			
R112/212	50515240	150			
R113/213	50515350	1.2k			
R114/214	50515460	5.6k			
R115/215	50515770	820k			
R116/216	50515380	2.2k			
R117/217	50515380	2.2k			

PREAMPLIFIER *(CONTINUED)*

CIRCUIT REF.NO.	TEAC PARTS NO.	DESCRIPTION	1st	2nd	3rd
R118/218	50515490	10k			
R119/219	50515300	470			
R120/220	50515580	39k			
R121/221	50515580	39k			
R122/222	50518240	56k			
R123/223	50515340	1k			
R124/224	50515650	120k			
R125/225	50515520	18k			
R126/226	50515700	270k			
R127/227	50515280	330			
R128/228	50515330	820			
R129/229	50515460	5.6k			
R130/230	50515300	470			
R131/231	50515540	22k			
R132/232	50515490	10k			
R133/233	50515500	12k			
R134/234	50515660	150k			
R135/235	50515260	220			
R136/236	50515410	3.3k			
R137/237	50515340	1k			
R138/238	50515520	18k			
R139/239	50515380	2.2k			
R140/240	50515660	150k			
R141/241	50518240	56k			
R142/242	50515320	680			
R143/243	50515620	68k			
R145/245	50515630	82k			
R146/246	50515360	1.5k			
R147/247	50515380	2.2k			
R148/248	50515520	18k			
R149/249	50515670	180k			
R150/250	50515710	330k			
R151/251	50515460	5.6k			
R152/252	50515670	180k			
R153/253	50515350	1.2k			
R154/254	50515340	1k			
R155/255	50515300	470			
R156/256	50515620	68k			
R157/257	50515440	4.7k			
R158/258	50515280	330			
R159/259	50515330	820			
R160/260	50515700	270k			
R161/261	50515490	10k			
R162/262	50518240	56k			
R163/263	50515340	1k			
R164/264	50515580	39k			
R165/265	50515350	1.2k			
R166/266	50515570	33k			
R167/267	50515430	3.9k			

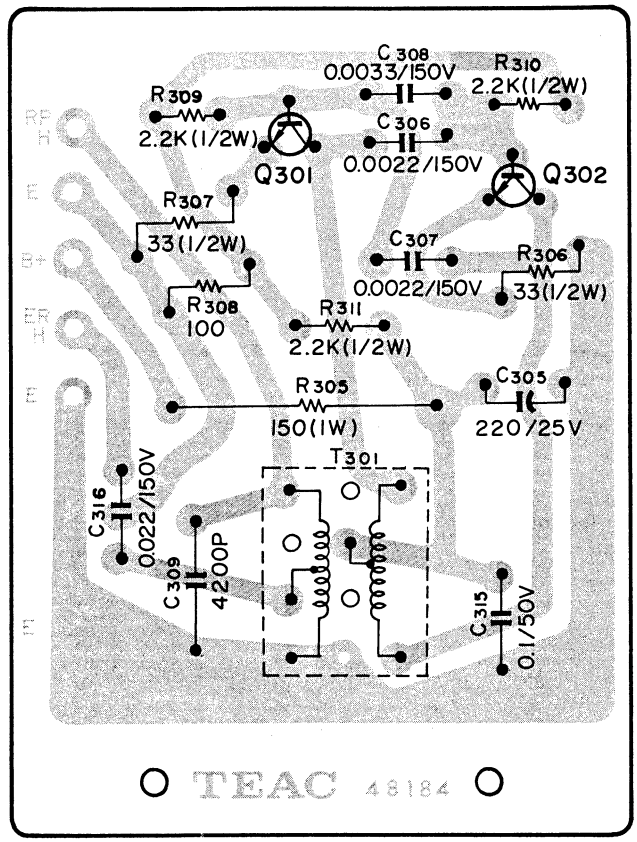
PREAMPLIFIER *(CONTINUED)*

CIRCUIT REF.NO.	TEAC PARTS NO.	DESCRIPTION	1st	2nd	3rd
R168/268	50515440	4.7k			
R169/269	50515580	39k			
R170/270	50515680	220k			
R171/271	50515350	1.2k			
R172/272	50515430	3.9k			
R173/273	50515440	22k			
R174/274	50515590	47k			
R175/275	50515380	2.2k			
R176/276	50515170	47			
R177/277	50515350	1.2k			
R178/278	50515440	4.7k			
R179/279	50515130	22			
		TRIMMER RESISTORS			
VR101/201	50533960	33k (B)			
VR102/202	50533960	33k (B)			
VR103/203	50533560	22k (B)			
VR104/204	50533560	22k (B)			
VR105/205	50533560	22k (B)			
VR107/207	50533560	22k (B)			
VR108/208	50533560	22k (B)			
		CAPACITORS			
		ALL CAPACITORS IN MICRO FARADS UNLESS OTHERWISE NOTED.			
C101/201	50546010	Tantalum 10 10V			
C102/202	50543480	Polyst. 47pF 50V			
C103/203	50554840	Elec. 330 16V			
C104/204	50543420	Polyst. 220pF 50V			
C105/205	50554030	Elec. 47 6.3V			
C106/206	50554570	Elec. 100 10V			
C107/207	50554570	Elec. 100 10V			
C108/208	50543330	Polyst. 22pF 50V			
C109/209	50543400	Polyst. 100pF 50V			
C110/210	50554040	Elec. 10 25V			
C111/211	50548420	Mylar 0.015 50V			
C112/	50554170	Elec. 100 25V			
C113/213	50554810	Elec. 1 25V			
C114/214	50554810	Elec. 1 25V			
C115/215	50554220	Elec. 3.3 25V			
C116/216	50554040	Elec. 10 25V			
C118/218	50554040	Elec. 10 25V			
C119/219	50548020	Mylar 0.01/50V			
C120/220	50554880	Elec. 22 16V			
C121/221	50554880	Elec. 22 16V			
C122/222	50543400	Polyst. 100pF 50V			
C123/223	50554040	Elec. 10 25V			

PREAMPLIFIER *(CONTINUED)*

CIRCUIT REF.NO.	TEAC PARTS NO.	DESCRIPTION	1st	2nd	3rd
C124/224	50554040	Elec. 10 25V			
C125/225	50554010	Elec. 47 16V			
C126/226	50554040	Elec. 10 25V			
C127/227	50548320	Mylar 0.001 50V			
C128/228	50548130	Mylar 0.0047 50V			
C129/229	50554030	Elec. 47 6.3V			
C130/230	50554040	Elec. 10 25V			
C131/231	50543480	Polyst. 47pF 50V			
C132/232	50546040	Aluminum 0.47 25V			
C133/233	50554040	Elec. 10 25V			
C134/234	50554040	Elec. 10 25V			
C135/235	50554040	Elec. 10 25V			
C136/236	50548320	Mylar 0.001 50V			
C137/237	50554330	Elec. 220 6.3V			
C138/238	50549140	Aluminum 0.15 16V			
C139/239	50548510	Mylar 0.06 50V			
C140/240	50554040	Elec. 10 25V			
C142/242	50554810	Elec. 1 25V			
C143/243	50554570	Elec. 100 10V			
C144/244	50554810	Elec. 1 25V			
C145/245	50554040	Elec. 10 25V			
C146/246	50546030	Aluminum 3.3 25V			
C147/247	50543720	Polyst. 820pF 50V			
C148/248	50548290	Mylar 0.022 50V			
C149/249	50548470	Mylar 0.047 50V			
C150/250	50548130	Mylar 0.0047 50V			
C151/251	50548240	Mylar 0.033 50V			
		COILS			
L101/201	50566410	Trap, 220μH			
L102/202	50566300	Trap, 3mH			
L103/203	50566370	Rec. EQ 4.2/2.4mH			

BIAS OSCILLATOR

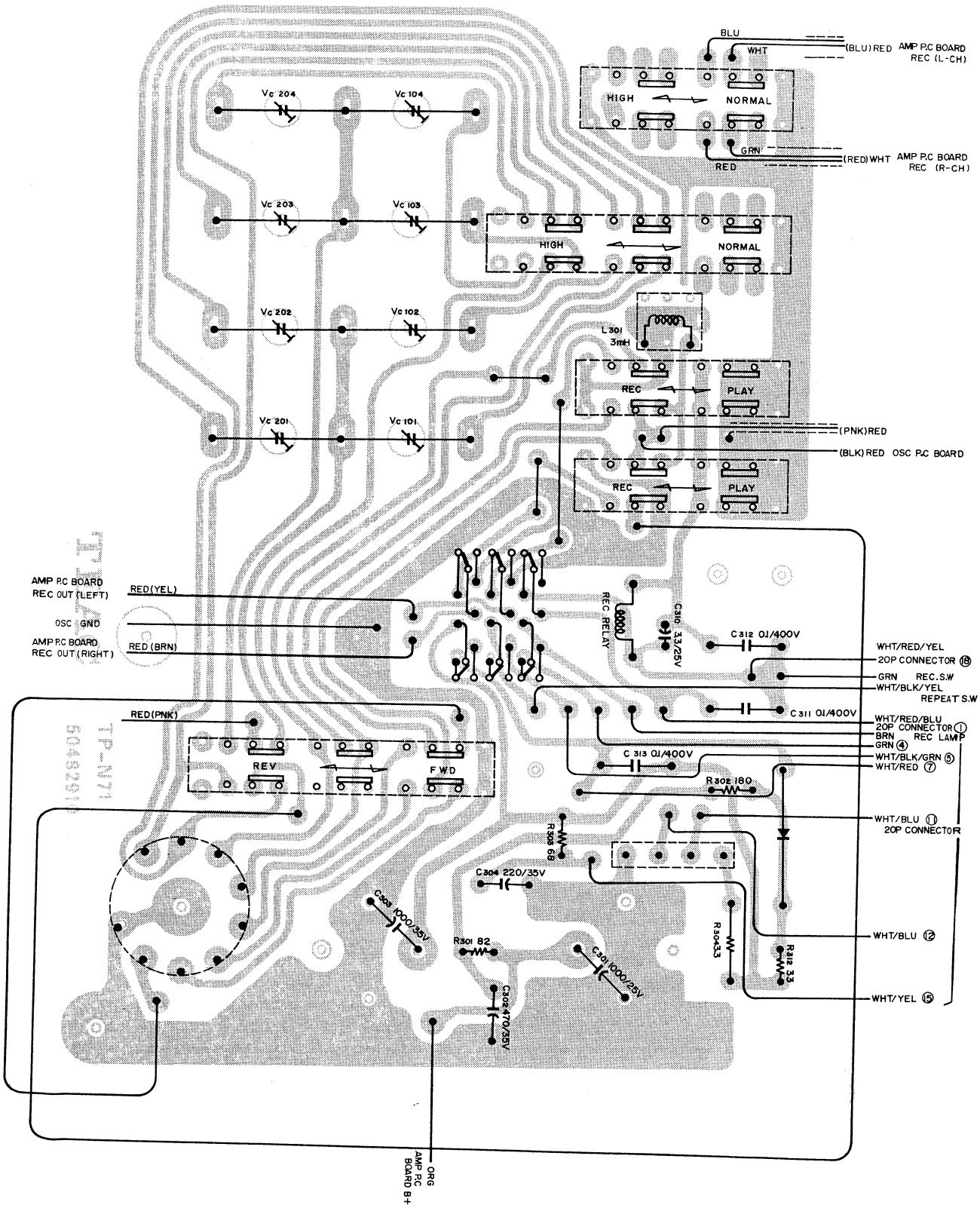


M-0456-1

CIRCUIT REF.NO.	TEAC PARTS NO.	DESCRIPTION	1st	2nd	3rd
	50489620	PC Board Assy, Bias Osc.			
T301	50563120	Transformer, Osc.			
Q301	50423880	Transistor 2SC971			
Q302	50423880	Transistor 2SC971			
R305	50527090	Metal Oxide Film, 150Ω 1W			
R306·307	50515150	Carbon, 33Ω 1/4W 10%			
R308	50515220	Carbon, 100Ω 1/4W 10%			
R309∿311	50515380	Carbon, 2.2kΩ 1/4W 10%			
C305	50554180	Elec. 220μF 25V			
C306·307	50548210	Mylar 0.0022μF 150V			
C308	50548530	Mylar 0.0033μF 150V			
C309	50544040	Mica 4200pF			
C315	50548040	Mylar 0.1μF 50V			

PC BOARD
A-4070G

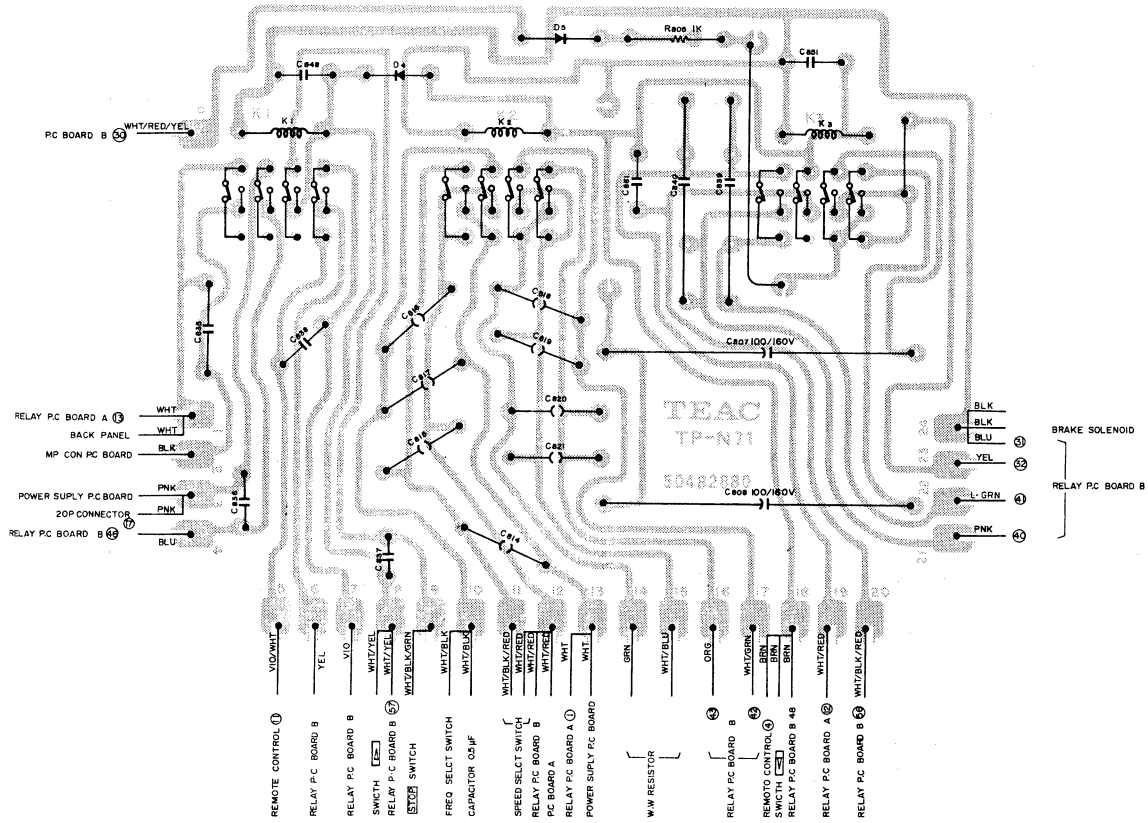
BIAS ADJUST ASSY



BIAS ADJUST ASSY

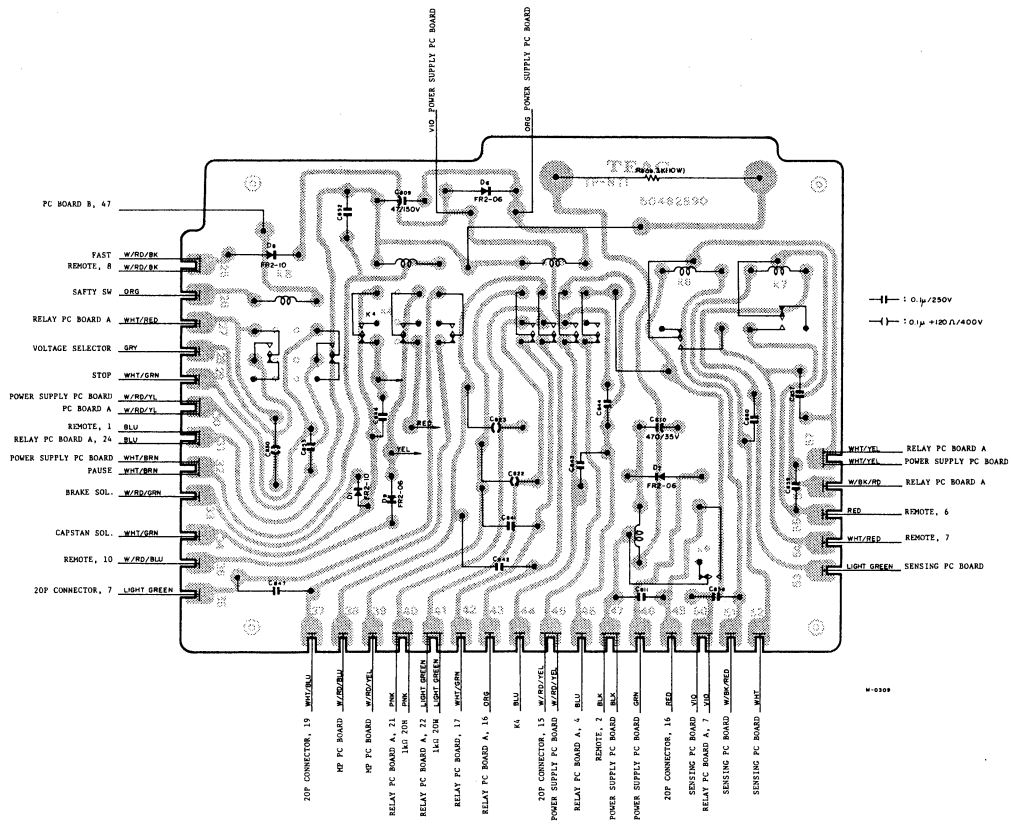
CIRCUIT REF.NO.	TEAC PARTS NO.	DESCRIPTION	1st	2nd	3rd
	50490610	PC Board Assy, Bias Adjust			
	50221510	Spring Hook			
J302a	50432730	Socket, 9P			
J302b	50432730	Plug, 9P (with Cable)			
K301	50610860	Relay, 6P DC24V MH6P			
	50432720	Relay Socket, with Clamp			
D1	50422220	Silicon Stack (B)			
	50422340	Diode, FR2-02			
L301	50566300	Coil, Trap, 3mH			
S3	50444330	SW, Slide, 4PDT			
S4	50444340	SW, Slide, 6PDT			
S5	50444130	SW, Slide, 6PDT			
S6·7	50444330	SW, Slide, 4PDT			
	50429140	Spring, for Relay Clamp			
		CARBON RESISTORS			
R301	50516210	82Ω 1/2W 10%			
R302	50516250	180Ω 1/2W 10%			
R303	50516200	68Ω 1/2W 10%			
R304	50526070	3.3Ω 2W 10%			
R312	50516150	33Ω 1/2W 10%			
		CAPACITORS			
C301	50554440	Elec. 1000μF 25V			
C302	50554620	Elec. 470μF 35V			
C303	50554940	Elec. 1000μF 35V			
C304	50554380	Elec. 220μF 35V			
C310	50554220	Elec. 3.3μF 25V			
C311	50548390	Metallized Mylar 0.1μF 400V			
C312	50548390	Metallized Mylar 0.1μF 400V			
C313	50548390	Metallized Mylar 0.1μF 400V			
VC101∿104	50547070	Trimmer 80pF			
VC201∿204	50547070	Trimmer 80pF			

RELAY PC BOARD ASSY A



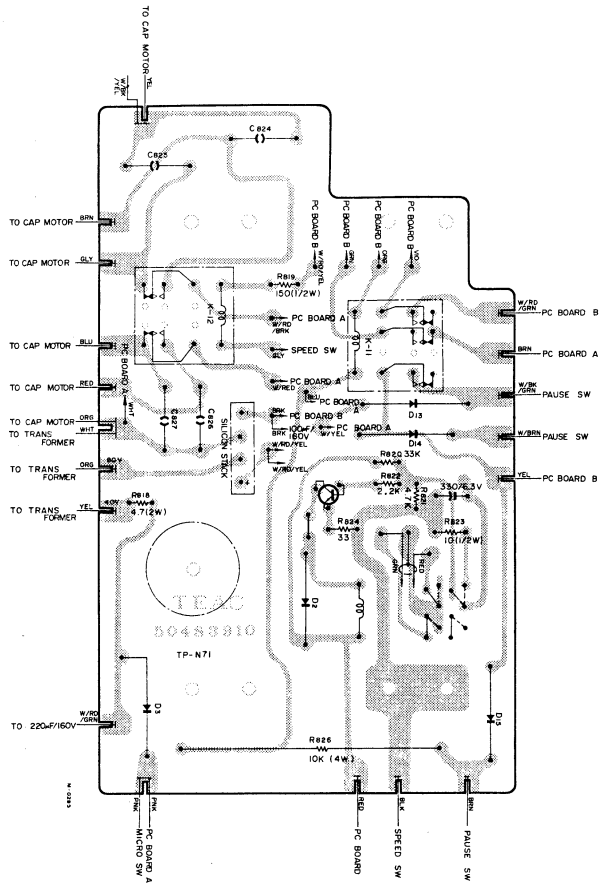
CIRCUIT REF.NO.	TEAC PARTS NO.	DESCRIPTION	1st	2nd	3rd
	50489160	PC Board Assy, Relay A			
K1∿3	50610730	Relay, 4T 100V (MY-4)			
D4・5	50422360	Diode, FR2-06			
R805		Resistor, Carbon 1kΩ 1/4W			
C807・808	50555250	Cap., Elec. 100μF 160V			
C814∿821	50529050	Spark Killer 0.1μF + 120Ω (400V)			
C835∿838	50548060	Cap., Mylar 0.1μF 250V			
C839・840	50548060	Cap., Mylar 0.1μF 250V			
C848	50548060	Cap., Mylar 0.1μF 250V			
C851	50548060	Cap., Mylar 0.1μF 250V			
C861	50548060	Cap., Mylar 0.1μF 250V			

RELAY PC BOARD ASSY B

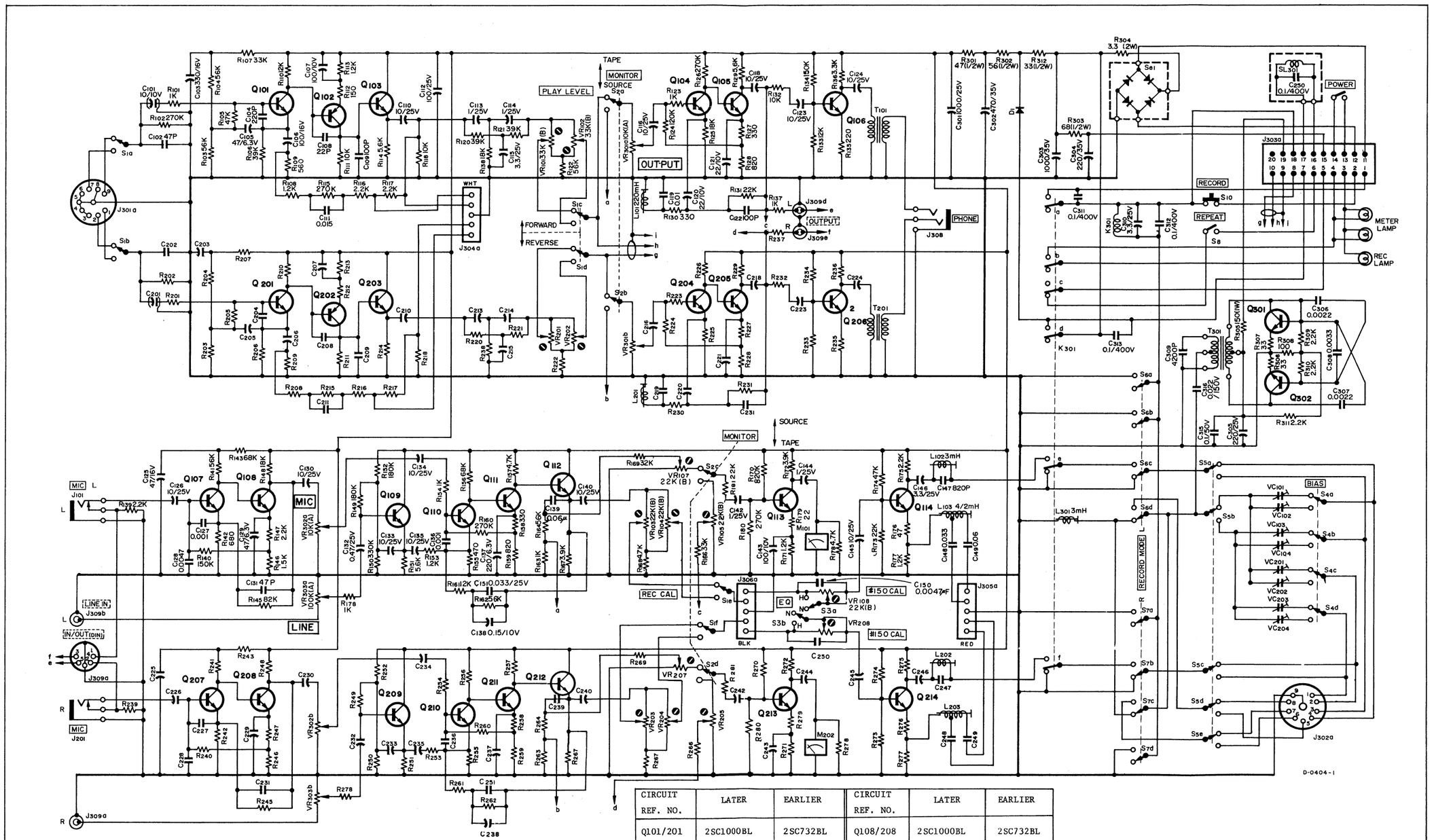


CIRCUIT REF.NO.	TEAC PARTS NO.	DESCRIPTION	1st	2nd	3rd
	50490580	PC Board Assy, Relay B			
R806	50520070	Resistor, Cement 3kΩ			
K4·5·8	50610730	Relay, 4T 100V (MY-4)			
K6·7·9	50610800	Relay, 1T 24V			
D1·8	50422380	Diode, FR2-10			
D6·7·9	50422360	Diode, FR2-06			
C809	50554000	Cap., Elec. 4.7μF 160V			
C810	50554620	Cap., Elec. 470μF 35V			
C822·823	50529050	Spark Killer 0.1μF + 120Ω (400V)			
C830	50529050	Spark Killer 0.1μF + 120Ω (400V)			
C841∿844	50548060	Cap., Mylar 0.1μF 250V			
C846·847	50548060	Cap., Mylar 0.1μF 250V			
C852·853	50548060	Cap., Mylar 0.1μF 250V			
C857∿860	50548060	Cap., Mylar 0.1μF 250V			

POWER SUPPLY



CIRCUIT REF.NO.	TEAC PARTS NO.	DESCRIPTION	1st	2nd	3rd
	50490590	PC Board Assy, Power Supply			
Q806	50424340	Transistor, 2SC1000-BL			
Se801	50422240	Silicon Stack (B)			
D2	50422560	Diode, SIB01-02			
D3·15	50422360	Diode, FR2-06			
D13·14	50422370	Diode, FR2-08			
C824∿827	50529050	Spark Killer 0.1μF + 120Ω (400V)			
K10	50610690	Relay, 4T 24V (MY-4)			
K11	50610730	Relay, 4T 100V (MY-4)			
K12	50610520	Relay, 4T 24V (MH4-PM-1)			
R818	50525920	Resistor, Wire Wound 4.7Ω 1W			
R819	50574620	Resistor, Carbon 150Ω 1/2W			
R820	50515570	Resistor, Carbon 33kΩ 1/4W			
R821	50515440	Resistor, Carbon 4.7kΩ 1/4W			
R822	50515380	Resistor, Carbon 2.2kΩ 1/4W			
R823		Resistor, Carbon 10Ω 1/2W			
R824		Resistor, Carbon 33Ω 1/2W			
R825		Resistor, Carbon 270Ω 1/2W			
C863		Cap., Elec. 330μF 6.3V			



NOTES

All resistors values in ohms, 1/4watt, K=1000ohm
All capacitors values in microfarads
⊘ : screw driver adjustment
▭ : on front panel
▭ : on rear panel
Unless otherwise specified:50V

CIRCUIT REF. NO.	LATER	EARLIER	CIRCUIT REF. NO.	LATER	EARLIER
Q101/201	2SC1000BL	2SC732BL	Q108/208	2SC1000BL	2SC732BL
Q102/202	2SA494Y		Q109/209	2SC1000BL	2SC732BL
Q103/203	2SC733Y		Q110/210	2SC1000BL	2SC732BL
Q104/204	2SC733Y		Q111/211	2SC733Y	
Q105/205	2SC733Y		Q112/212	2SC733Y	
Q106/206	2SC733Y		Q113/213	2SC733BL	
Q107/207	2SC1000BL	2SC732BL	Q114/214	2SC733Y	

REVISION	DATE	CHANGE NO.
6	·	
5	·	
4	·	
3	·	
2	·	
1	1·73	K-110

STEREO TAPE DECK
PREAMPLIFIER
MODEL NO. **A-4070G**
SHEET NO.
TEAC CORPORATION
A.0101

REVISION	DATE	CHANGE NO.
1	5·72	
2	8·73	K-110
3	·	
4	·	
5	·	
6	·	

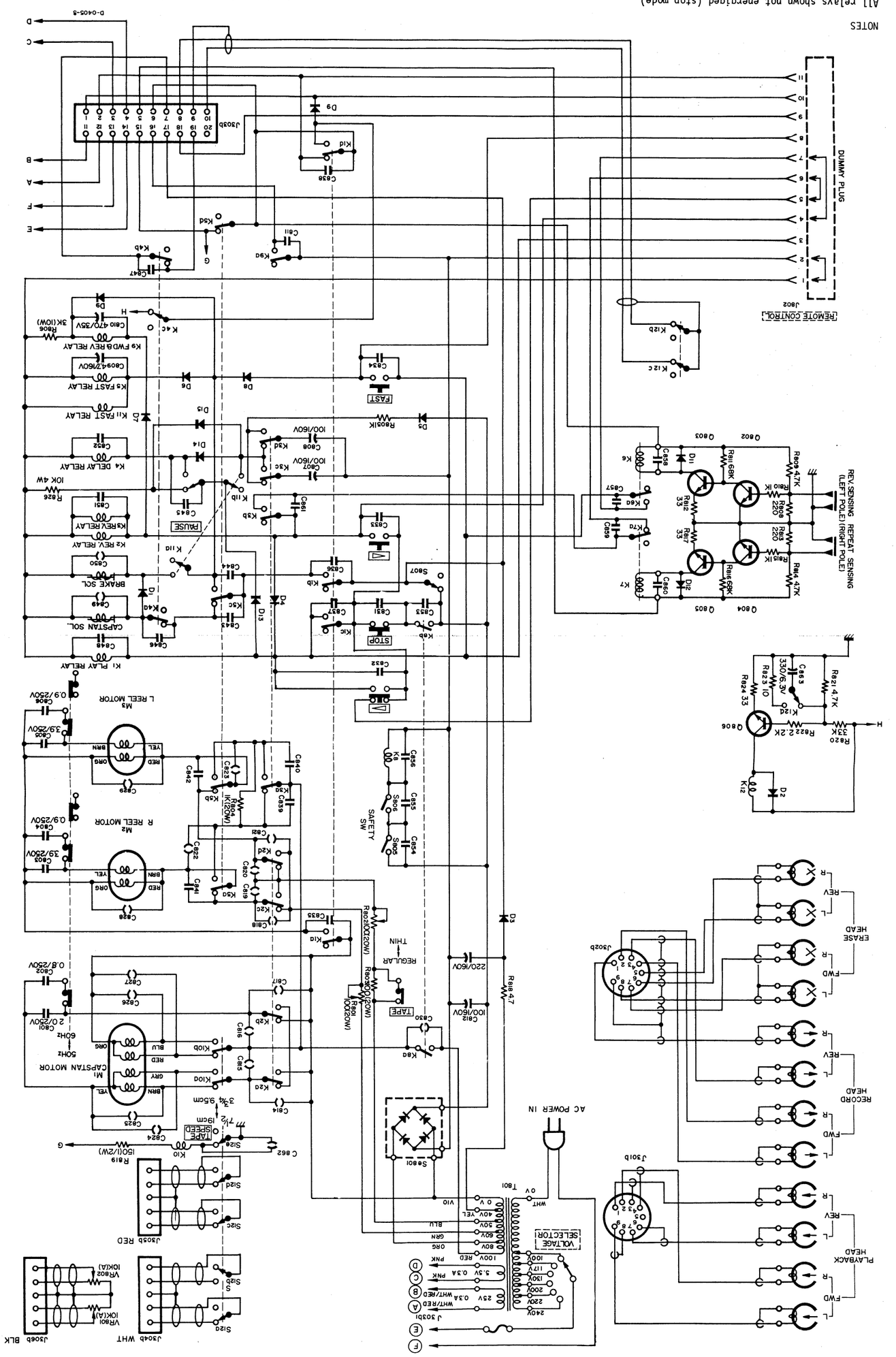
STEREO TAPE DECK
TAPE TRANSPORT
MODEL NO. **A-4070G**
SHEET NO.

TEAC CORPORATION

CIRCUIT REF. NO.	DESCRIPTION
Q802/804	2SC733(Y)
Q803/805	2SC1000(BL)
Q806	2SC1000(BL)

NOTES

All relays shown not energized (stop mode)
TAPE SPEED switch shown in the 7-1/2 position
Frequency conversion switch shown in the 50 Hz position
: on front panel
: on rear panel
D1 D8 : FR2-10
D2 D11 D12 : S1B01-02
D3~7 D9 D15 : FR2-06
D13 D14 :FR2-08



Important Information for Service Stations and Customers

TEAC MANUAL CHANGE SHEET

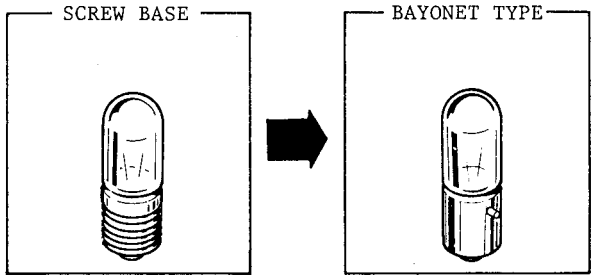
APPLICABLE SERIAL NO.
SEE BELOW CHART

MODELS A-4010GSL, A-4070, A-4070G
A-6010GSL, A-7010GSL, A-7030GSL

LOCATION IN SERVICE MANUAL

PILOT LIGHT CHANGE

Pilot light assy has been changed from screw base to bayonet type to preclude loosening of bulb during transportation.



MODELS	APPLICABLE SERIAL NO.
A-4010GSL	233061 AND AFTER
A-4070	11161 AND AFTER
A-4070G	19191 AND AFTER
A-6010GSL	71691 AND AFTER
A-7010GSL	27991 AND AFTER
A-7030GSL	25711 AND AFTER
TEAC-7030GSL	26341 AND AFTER

The chart below describes the changes. For reference, see the appropriate schematic and exploded view.

DESCRIPTION	TEAC PARTS NO.		APPLICABLE ON MODEL
	BEFORE	AFTER	
Cover, Lamp	--------	50419070	A-4010GSL
	50419050	50419070	A-6010GSL, A-7010GSL A-7030GSL
Socket, Lamp	50431140	50415250	A-4010GSL, A-4070G
	50415030	50415250	A-6010GSL, A-7010GSL A-7030GSL
Lamp, Bayonet Type (8V)	50414131	50414580	DM EX
	50414131	50414510	TCA

DM For only domestic (Japan) market decks, all models.

EX For all export versions except TCA or Japan, all models.

TCA For TCA (US) versions only, all models.

D-634
F-269, F-286, F-297
K-034, K-105

TEAC CORPORATION